Petrified Forest National Park

National Park Service
U.S. Department of the Interior

Petrified Forest National Park
Arizona

Environmental Assessment / Assessment of Effect

Rehabilitate Painted Desert Inn and Cabins
November 2003

ENVIRONMENTAL ASSESSMENT/ASSESSMENT OF EFFECT
Rehabilitate Painted Desert Inn and Cabins

Prepared For:
National Park Service

Prepared By:
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Petrified Forest National Park
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Environmental Assessment / Assessment of Effect
Rehabilitate Painted Desert Inn and Cabins

Petrified Forest National Park
Navajo and Apache Counties, Arizona

Summary

At Petrified Forest National Park, the National Park Service proposes to rehabilitate the Painted Desert Inn and nearby buildings 76 and 77 (cabins). All three buildings are listed as a National Historic Landmark in the National Register of Historic Places. The rehabilitation project also includes the repair and/or redesign and restructuring of the wastewater treatment / disposal system for these structures. This action is needed to bring the structures into compliance with life safety codes, appropriate building codes, Uniform Building Accessibility Standards, National Park Service guidelines, and historic preservation policies. The rehabilitation would also improve operational efficiency.

This environmental assessment / assessment of effect examines in detail two alternatives: no action and the National Park Service preferred alternative. The preferred alternative would have no or negligible impacts to special-status species, ethnographic resources, archeological resources, petrified wood and other fossils, soundscapes and lightscapes, soils, geologic hazards, wilderness values, water resources, air quality, socioeconomics, prime and unique farmlands, Indian trust resources, ecologically critical areas, wild and scenic rivers, other unique natural areas, and environmental justice.

There would be local, short-term, minor, adverse impacts to biotic communities, soils, visitor experience, park operations, and health and safety. There would be local, long-term, negligible, beneficial impacts to park operations as a result of improvements to the Painted Desert Inn and the wastewater treatment/disposal system. There would be long-term, minor, beneficial impacts to health and safety and visitor experience as a result of the overall renovations that would provide accessibility for all populations, eliminate potential health hazards as a result of sewage overflows, and reduce the risk of accidents through repair of uneven walkways, paths, and stairs. The long-term effects to the cultural landscape and museum collections would be minor and beneficial as a result of the restoration of these structures that are important to the cultural landscape of the area and installation of fire and theft detection systems and fire suppression systems to prevent catastrophic losses. The long-term effects to the historic structures would be beneficial and moderate, due to the fact that structures would be rehabilitated and the historic integrity preserved.

After applying the Advisory Council on Historic Preservation's criteria of adverse effect (36 CFR 800.5), the National Park Service determined that the activities proposed in alternative B would have *no adverse effect* to the historic structures or cultural landscape.

Notes to Reviewers and Respondents

If you wish to comment on the environmental assessment / assessment of effect, you may mail comments to the name and address below. Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. *If you want us to withhold your name and address, you must state this prominently at the beginning of your comment.* We will make all submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

Please address comments to:

Superintendent; Petrified Forest National Park; PO Box 2217; Petrified Forest, AZ 86028

E-mail: PEFO_superintendent@nps.gov

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ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
NEPA	National Environmental Policy Act of 1969
NPS	National Park Service
NRHP	National Register of Historic Places
USC	United States Code

INTRODUCTION

PURPOSE OF AND NEED FOR ACTION

The National Park Service (NPS) is considering rehabilitating three historic structures at Petrified Forest National Park, Navajo and Apache Counties, Arizona (figure 1), including the Painted Desert Inn and cabins 76 and 77. The action also includes repair and/or redesign and reconstruction of the wastewater system for the inn and cabins. This action is needed to bring the structures into compliance with life safety codes, appropriate building codes, Uniform Building Accessibility Standards, National Park Service guidelines, and historic preservation policies. The rehabilitation would also improve operational efficiency.

This action is needed to address deficiencies and failed components to ensure long-term preservation of the Painted Desert Inn, listed as a National Historic Landmark and on the National Register of Historic Places (NRHP) and two associated cabins that are contributing elements to the inn's NRHP designation, but not considered part of the National Historic Landmark.

An environmental assessment analyzes the proposed action and alternatives and their potential impacts on the environment. This environmental assessment / assessment of effect has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), regulations of the Council on Environmental Quality (40 *Code of Federal Regulations* (CFR) 1508.9), National Park Service Director's Order – 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making,* and the National Historic Preservation Act of 1966, as amended (16 *United States Code* (USC) 470 *et seq.*).

PARK PURPOSE, SIGNIFICANCE, AND MISSION

An essential part of the planning process is understanding the purpose, significance, and mission of the park for which this environmental assessment / assessment of effect is being prepared.

Park Purpose

Park purpose statements are based on national park legislation, legislative history, and National Park Service policies. The statements reaffirm the reasons for which the national park was set aside as a unit of the national park system, and provide the foundation for national park management and use.

The purpose of Petrified Forest National Park is to:

- Preserve and protect the Petrified Forest, its outstanding paleontologic sites and specimens, its associated ecosystems, cultural and historical resources, and scenic and wilderness values for present and future generations.

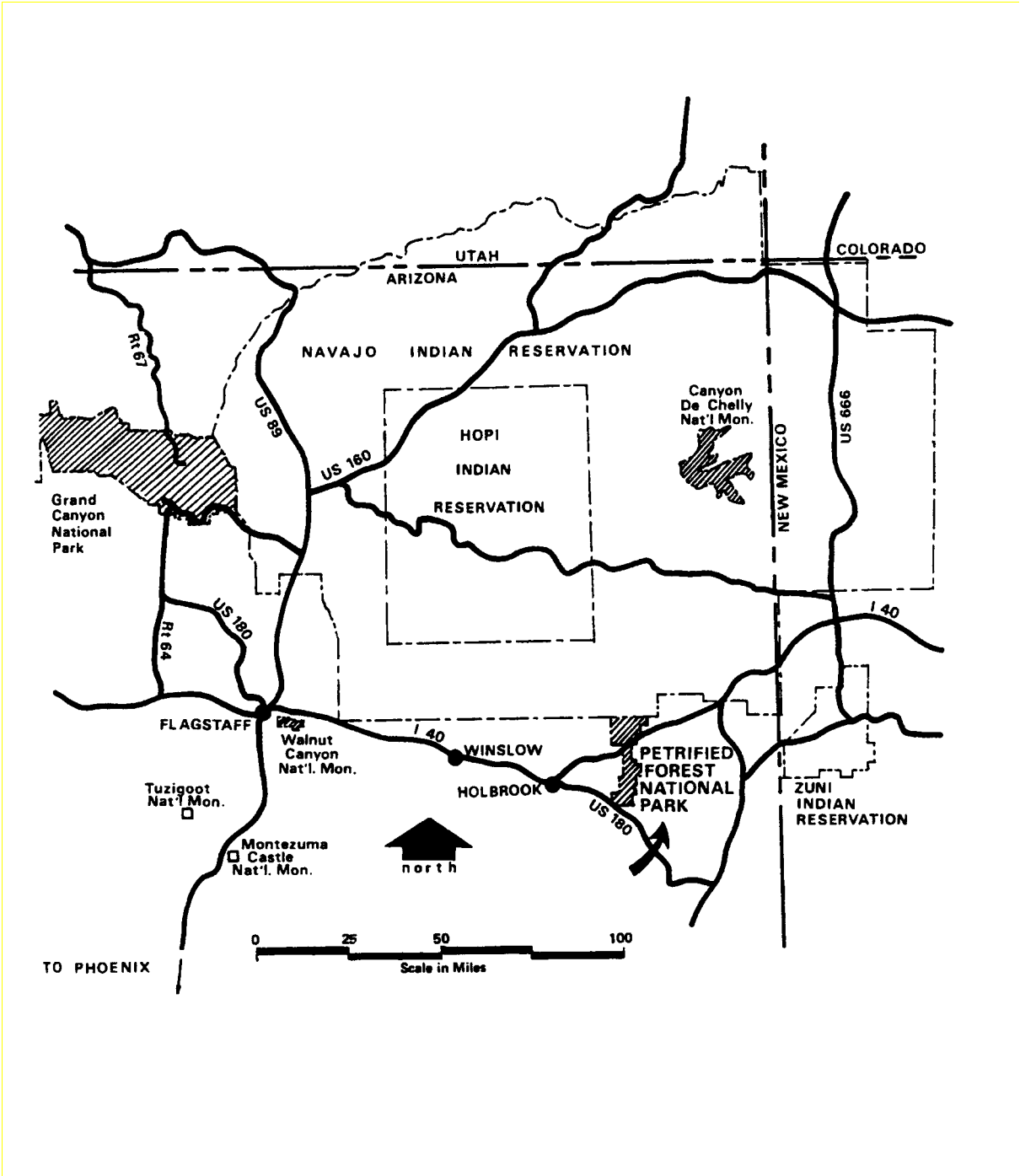

FIGURE 1. MAP OF THE REGION

- Provide opportunities to experience, understand, and enjoy the Petrified Forest and surrounding area in a manner that is compatible with the preservation of park resources and wilderness character.
- Facilitate orderly, regulated, and continuing research.
- Promote understanding and stewardship of resources and park values by providing educational opportunities for students, scientific groups, and the public.

Park Significance

Park significance statements capture the essence of the national park's importance to the natural and cultural heritage of the United States of America. Significance statements do not inventory park resources; rather, they describe the park's distinctiveness and help place the park within the regional, national, and international context. Defining park significance helps managers make decisions that preserve the resources and values necessary to accomplish the purpose of Petrified Forest National Park.

Petrified Forest National Park is globally significant for its exposures of Chinle Formation fossils that preserve evidence of the Late Triassic period ecosystem of more than 200 million years ago. The detailed paleontologic (fossil) and stratigraphic (layered) records of the park provide outstanding opportunities to study changes in organisms and their environments in order to better understand today's environment.

Park Mission

Park purpose describes the specific reason the park was established. Park significance is the distinctive features that make the park different from any other. Together, purpose and significance lead to a concise statement—the mission of the park. Park mission statements describe conditions that exist when the legislative intent for the park is being met.

The expansive, undulating, and colorful Painted Desert reveals layers of history that began over 200 million years ago. Life of the Late Triassic period, hardened into fossils and petrified wood, offers a globally significant mosaic of an ancient ecosystem, vastly different from today. Figures pecked into boulders, the remains of ancient homes, and well-traveled pathways speak of peoples drawn here for thousands of years. Petrified Forest preserves awe-inspiring vistas and rare opportunities for visitors and scientists to discover and wonder about the stories this land reveals.

PROJECT BACKGROUND, PREVIOUS PLANNING, AND SCOPING

Project Background

The Painted Desert Inn, a former trading post and inn on the rim of the Painted Desert, has been designated as a National Historic Landmark, a designation reserved for historic properties of exceptional national significance, in recognition of its historic and aesthetic qualities. The inn also has regional significance as a product and symbol of the New Deal work

relief programs. Originally constructed in 1924, the stone structure was gutted and rebuilt between 1937 and 1940 by the Civilian Conservation Corps using local materials, including some petrified wood. The resulting Pueblo Revival structure is two stories, but is banked into the hillside so it exposes a low profile to the Painted Desert. The thick stone walls are covered with earth-toned stucco. The magnificent interior spaces are finished with log vigas, carved posts, flagstone floors, and wood-framed casement windows. A painted glass skylight designed by Lyle Bennet in 1937, and murals by Hopi artist Fred Kabotie, painted in 1947, enhance the building's combination of architecture and design. The 28 rooms were originally used for public information, restrooms, park offices, lunch and dining rooms, a soda fountain, a bar, a trading post, and six sleeping rooms. Over time, the inn has badly deteriorated. During the late 1980s and early 1990s, the building's condition was so poor it was closed to the public. Efforts during the mid-1990s reopened the building to the public (NPS 1993).

Today, the inn is minimally used for book sales, restrooms, and a few display cases. A portion of the building is constructed on expansive soil and swells with a higher moisture content that causes the building to heave and settle. The building suffers from poor drainage and both the interior roof drains and exterior surface drainage have problems that result in water being directed to the foundation of the inn. The sewer system does not function properly and requires periodic pumping to an offsite facility.

Today, the two cabins are not used for any purpose and are closed to visitors. The overall condition of the cabins is in a state of disrepair with many interior and exterior features requiring repair or restoration. These buildings, along with the Painted Desert Inn, are all that remain of Civilian Conservation Corps construction that also consisted of a power station, gas station, and garage. Figures 2, 3, 4, 5, and 6 show inn and cabins and their location.

PREVIOUS PLANNING

In 1991, the National Park Service initiated a study of the Painted Desert Inn to guide the execution of preservation efforts for the inn and cabins 76 and 77. Historic Structure Reports completed for the inn and cabins provide alternative treatment methods and recommendations to protect the significant qualities of the structures (NPS 1994a, 1994b).

In May of 2002, a cultural landscape study was completed for the cultural landscape that was encompassed by the Painted Desert Inn. A cultural landscape is defined in the National Park Service Cultural Resource Management guideline as:

> "…a reflection of human adaptation and use of natural resources and is often expressed in the way the land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined by both physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions."

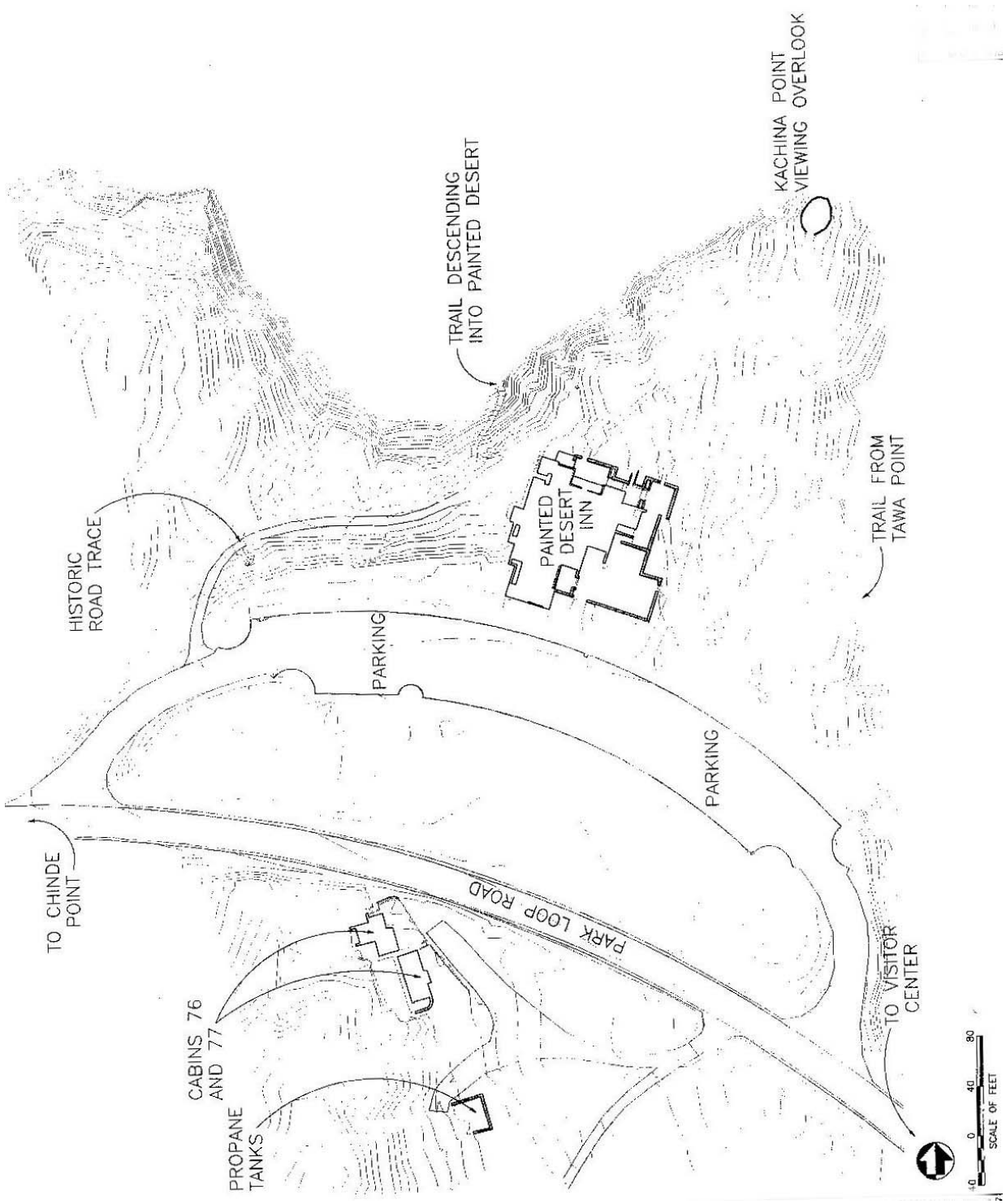

FIGURE 2. PAINTED DESERT INN VICINITY MAP

FIGURE 3. PAINTED DESERT INN — 1939

FIGURE 4. PAINTED DESERT INN — TODAY

FIGURE 5. CABINS 76 (ON LEFT) AND 77 (ON RIGHT)

FIGURE 6. CABIN 77

This cultural resource landscape study, entitled Painted Desert Inn CLI Phase One, defined a new period of significance and compared rehabilitation and construction activities since that period and their adherence to historical integrity (Sloan and Associates 2002).

In 2003, a Cultural Landscape Treatment Plan was developed to provide design guidelines and implementation recommendations for the rehabilitation of the Painted Desert Inn and the associated cabins, including both interior and exterior features (OCULUS 2003).

Rehabilitating the Painted Desert Inn is consistent with the management goals and zoning of Petrified Forest National Park's *Final General Management Plan / Development Concept Plan / Environmental Impact Statement* (NPS 1992), *Statement for Management* (NPS 1996), and *Strategic Plan 2000–2005* (NPS 2000). The 1993 *General Management Plan* stated that the Painted Desert Inn would be rehabilitated for interpretation and visitor services, and a state-of-the-art security system would be installed to protect the inn from trespass entry, vandalism, or fire (NPS 1993).

SCOPING

Scoping is the effort to involve agencies and the general public in determining the scope of issues to be addressed in the environmental document. Among other tasks, scoping determines important issues and eliminates unimportant ones; allocates assignments among the interdisciplinary team members and/or other participating agencies; identifies related projects and associated documents; identifies other permits, surveys, consultations, etc. required by other agencies; and creates a schedule that allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. Scoping includes any interested agency, or any agency with jurisdiction by law or expertise (including the Advisory Council on Historic Preservation, the State Historic Preservation Office, and American Indian tribes) to obtain early input.

Park staff and resource professionals of the National Park Service – Denver Service Center, and the Arizona State Historic Preservation Office conducted internal scoping. This interdisciplinary process defined the purpose and need, identified potential actions to address the need, determined the likely issues and impact topics, and identified the relationship of the proposed action to other planning efforts at the park.

A press release initiating scoping and describing the proposed action was issued July 10, 2003, (appendix A). Comments were solicited during a public scoping period that ended August 12, 2003; no comments were received. Letters were sent December 23, 2003, to the U.S. Fish and Wildlife Service and the Arizona Game and Fish Department, requesting a list of threatened and endangered species and species of special concern for the proposed project. The public and American Indian groups traditionally associated with the lands of the park will also have an opportunity to review and comment on the environmental assessment / assessment of effect.

The National Historic Preservation Act, as amended (16 USC 470 *et seq.*), NEPA, National Park Service Organic Act, *NPS Management Policies* (2001), Director's Order – 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* (2001), and Director's Order – 28: *Cultural Resources Management Guideline* require the consideration of impacts on cultural resources, either listed in or eligible to be listed in, the NRHP. Consultation with the Arizona State Historic Preservation Office has been ongoing. A design review meeting was conducted at the park on November 7, 2002, and correspondence and designs have been forwarded for review and comment.

VALUE ANALYSIS

A Value Engineering and Choosing by Advantages study was completed for the Painted Desert Inn rehabilitation in 2001 (URS 2001). Alternative 5 of that report, enhance the Historic Structures Report (NPS 1994a) with Value Engineering recommendations, was chosen by the Choosing by Advantages team. Alternative 5 would include the following components:

- Reroute the surface flow away from the building by regrading the site.
- Replace roofing and modify roof drains to ensure proper drainage.
- Seal cracks in parapet.
- Rebuild courtyard to properly drain.
- Create a monitoring program to accurately model the movement of the building.
- Perform a complete geotechnical investigation.
- Implement all of the recommended treatments identified in the Historic Structures Report.

The roof of the Painted Desert Inn is being repaired under a separate project. Under the preferred alternative, all of the remaining components would be implemented, except for the geotechnical investigation, which is not part of the preferred alternative.

The Value Engineering and Choosing By Advantages study evaluated one option that would completely raze the existing inn building in order to allow the foundation problems to be resolved. According to the study, the opportunity to treat the subsurface materials and design a building foundation suitable to mitigate future problems could only be accomplished if the current building was removed from the site. The cost to remove and reconstruct the inn building was prohibitive with little added benefit. The Value Engineering and Choosing By Advantages teams felt that if steps were taken to ensure the protection of the subsurface materials from water penetration and life safety issues were addressed, the structure should be stable enough to warrant the implementation of the Historic Structure Report's recommended treatment with minimal risk to the completed project and without implementing the cost-prohibitive treatments for foundation improvements. If unforeseen conditions do present themselves, the proposed monitoring program would provide the necessary information for a proactive structural stabilization technique to be designed and properly implemented.

ISSUES AND IMPACT TOPICS

Issues

Issues and concerns related to this proposal were identified from past National Park Service planning efforts and input from environmental groups and state and federal agencies. The major issues are the conformance of this proposal with the Petrified Forest National Park *General Management Plan*, and potential impacts to the national historic landmark (including historic structures and districts), museum collections, biotic communities, park operations, health and safety, socioeconomics, and visitor experience.

Derivation of Impact Topics

Specific impact topics were developed for discussion focus and to allow comparison of the environmental consequences of each alternative. These impact topics were identified based on federal laws, regulations, and executive orders; 2001 *NPS Management Policies*; and National Park Service knowledge of limited or easily impacted resources. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Impact Topics Included in this Document

Cultural Landscape

Petrified Forest National Park contains two cultural landscapes that have been deemed eligible for listing in the NRHP and three that are potentially eligible. The Rainbow Forest Historic Landscape and the Crystal Forest Cultural Landscape comprise the former, and the Puerco River (the prehistoric archeological landscape has not been fully evaluated), Painted Desert Inn, and Painted Desert Headquarters Cultural Landscape make up the latter. The only cultural landscape affected by the preferred alternative is the potential Painted Desert Inn Cultural Landscape.

According to the National Park Service *Cultural Resource Management Guideline*, a cultural landscape is:

> "…a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions."

Elements of the cultural landscape include the Painted Desert Inn, the cabins, associated structures, nearby natural features and systems, spatial organization and relationship of buildings and landscape features, land use, circulation patterns, views and vistas, vegetation, and small-scale features.

The inn and cabins are addressed under historic structures. The proposed actions have the potential to affect other elements of the cultural landscape. Sidewalks, flagstone courtyards, and the ground surface would be recontoured to promote drainage away from the buildings and improve accessibility to lower exterior spaces, desert overlooks, and entrances to the inn and restrooms. Therefore, cultural landscapes are addressed in this environmental assessment/ assessment of effect.

Historic Structures

Contained within the boundaries of the cultural landscape is the Painted Desert Inn, a former trading post and inn on the rim of the Painted Desert that has been designated as a National Historic Landmark in recognition of its historic and aesthetic qualities. The boundaries of the landmark include the inn and the immediate landscape surrounding the structure. The inn is also listed on the NRHP as a historic structure and two nearby cabins (not included in the national landmark designation) are associated with the inn and included in the NRHP nomination. Since these structures are the focus of the proposed action and would be affected by the preferred alternative, they are addressed in this environmental assessment / assessment of effect.

Museum Collections

The undertakings described in this environmental assessment /assessment of effect are subject to Director's Order – 24: *NPS Museum Collections Management* (2000). Museum collections are exhibited at the Painted Desert Inn and have the potential to be affected by the alternatives discussed in this document. Therefore, museum collections are addressed in this environmental assessment / assessment of effect.

Biotic Communities (wildlife and vegetation)

NEPA is the basic national charter for protection of the environment. It requires federal agencies to use all practicable means to restore and enhance the quality of the human environment and to avoid or minimize any possible adverse effects of their actions upon the environment. National Park Service policy is to protect the natural abundance and diversity of naturally occurring biotic communities within national park units. Because the alternatives in this document have the potential to affect biotic communities, this impact topic is addressed in this environmental assessment / assessment of effect.

Soils

Soils would be disturbed for the placement of the sewer pipeline from the Painted Desert Inn to the treatment tank and from the tank to the Painted Desert headquarters complex. Approximately 9,600 feet of pipeline would be located along or within existing roadways. Five hundred feet would be located in a currently undisturbed area between the Painted Desert Inn

parking lot and the main park road. Another 180 feet would replace existing pipeline from the Painted Desert Inn to the treatment tanks. Because soils would be disturbed as part of the preferred alternative, they are addressed in this environmental assessment / assessment of effect.

Park Operations

The Painted Desert Inn is used and would continue to be used for administrative offices and for park exhibits. Park operations, including operations within the Painted Desert Inn, could be affected by both the no-action and action alternatives. Therefore, park operations are addressed in this environmental assessment / assessment of effect.

Health and Safety

Public health and safety could be affected by the no-action and action alternatives. The Painted Desert Inn currently is open to visitors, but there are portions of the sidewalks and stairs that are no longer considered safe and are closed to visitors. Proposed rehabilitation work at the inn could represent a potential safety risk to workers. Therefore, health and safety is addressed in this environmental assessment / assessment of effect.

Visitor Experience

Providing for visitor enjoyment is one of the main purposes of the national park system according to the Organic Act. Petrified Forest National Park's purpose, mission, and significance statements reaffirm the importance of recreational values, visitor experience, and visitor understanding. Visitor experience could be affected by both the no-action and action alternatives; therefore, visitor experience is addressed in this environmental assessment / assessment of effect.

Impact Topics Dismissed from Further Analysis

Special-Status Species

The 1973 Endangered Species Act, as amended, requires an examination of impacts to all federally listed threatened and endangered species. National Park Service policy requires examination of the impacts to state listed threatened or endangered species and federal candidate species.

In a letter dated January 14, 2003 (USFWS Reference No. AESO/SE 02-21-03-I-0092) (appendix B), the U.S. Fish and Wildlife Service provided a Web page containing information of the endangered, threatened, proposed, and candidate species that may be within the project area or depend on it for critical habitat.

Through previous surveys, none of the species listed to occur in the Navajo and Apache Counties were observed, and habitats for the listed species do not exist within the project area. Should the preferred alternative be implemented, there would be no impacts to any listed special-status species or designated critical or essential habitat. Therefore, special-status

species was dismissed from detailed analysis in this environmental assessment / assessment of effect.

Ethnographic Resources

The park is adjacent to the Navajo Reservation; and the White Mountain Apache, Hopi, and Zuni Reservations are all within 80 miles of the park. The cultures of native people are inextricably bound with the lands once occupied by their ancestors. They view much of the park landscape as spiritually active, containing sites vital to the continuation of their lifeways. Although more than one American Indian ethnic group shares some ethnographically significant resources, most are unique to specific tribes. The park considers ethnographic sites significant and is committed to their preservation, protection, and confidentiality.

There are no known ethnographic resources in the project area; however, copies of the environmental assessment / assessment of effect will be forwarded to tribes for review and comment. If the tribes identify ethnographic resources in the project area, appropriate mitigation measures would be undertaken in consultation with the tribes. The location of ethnographic resources will not be made public. Since there are no known ethnographic resources within the project area at this time, this topic will not be addressed further in this environmental assessment / assessment of effect.

Archeological Resources

Prehistoric resources are extensive in Petrified Forest National Park and include over 600 recorded sites representing Paleo-Indian, Archaic, Basketmaker, Puebloan, and Navajo cultures. Pit houses, campsites, multi-room pueblos, projectile points, ceramics, and other resources comprise the park archeological record. Pictographs are rare, but large concentrations of petroglyphs exist on the patinaed sandstone that abounds in the park. There is evidence that the park has numerous unrecorded sites within its boundaries. Twelve of the more than 600 recorded sites have been excavated. The others form a regionally significant data bank of future scientific information (NPS 1996). Historic archeological resources are also located throughout the park. The sites represent the expanse of park history from the 19th century to the 1950s.

On January 13 and 14, 2003, archeologists from the Western Archeological and Conservation Center conducted an intensive archeological survey of the project area. They relocated one site, and recorded two sites and 14 isolated finds. In July, Western Archeological and Conservation Center reviewed the design plan for the project and stated that no adverse effects to archeological sites are expected from the proposed actions (Pearson 2003). Impacts to any sites that may be discovered during construction would be mitigated in consultation with the park consulting archeologist and Arizona State Historic Preservation Office. Since there would be no anticipated adverse effect to archeological resources in the project area, archeological resources are dismissed from detailed analysis in this environmental assessment / assessment of effect.

Petrified Wood and Other Fossils

Petrified Forest National Park was established primarily to preserve outstanding deposits of petrified wood and other fossil resources. Petrified wood and fossil sites are scattered throughout the park. However, all of the work associated with the proposed project would occur in previously disturbed areas; therefore, petrified wood and other fossils are dismissed from further analysis in this environmental assessment / assessment of effect.

Soundscapes and Lightscape Management

In accordance with *NPS Management Policies* (2001) and Director's Order – 47: *Sound Preservation and Noise Management*, an important part of the National Park Service mission is preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among National Park Service units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

In accordance with *NPS Management Policies* (2001), the National Park Service strives to preserve natural ambient landscapes that are natural resources and values that exist in the absence of human-caused light.

Noise associated with rehabilitation activities would be short term and localized, and activities would be scheduled to minimize effects on visitor experiences. Overall effects would be negligible. Lightscapes would not be affected by the project; therefore, these topics are dismissed from detailed analysis in this environmental assessment / assessment of effect.

Geologic Hazards

There are no specific geologic hazards such as earthquakes, volcanoes, or landslides in the project area; therefore, geologic hazards is dismissed from detailed analysis in this environmental assessment / assessment of effect.

Wilderness Values

The two wilderness units within the park were designated by Congress and are legally protected as wilderness in perpetuity. The *2001 NPS Management Policies* (NPS 2001) require the administration of National Park Service-managed wilderness in a manner that would leave them unimpaired for future use and enjoyment as wilderness. All proposed improvements are located outside of park wilderness areas. The proposed activities would not affect wilderness values; therefore, wilderness values is dismissed from detailed analysis in this environmental assessment / assessment of effect.

Water Resources, Including Wetlands, Floodplains, and Water Quality

Executive Orders 11988 (*Floodplain Management*) and 11990 (*Protection of Wetlands*) require an examination of impacts to floodplains and wetlands, and examination of potential risk involved in placing facilities within floodplains, and protecting wetlands. The 2001 *NPS Management Policies* (NPS 2001), Director's Order – 2: *Planning Guidelines*, and Director's Order – 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* provide guidelines for proposals in wetlands and floodplains.

There are no jurisdictional or National Park Service-defined wetlands or floodplains within the project area.

The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters; to enhance the quality of water resources; and to prevent, control, and abate water pollution. The 2001 *NPS Management Policies* (NPS 2001) provides direction for the preservation, use, and quality of water in national parks. Impacts to water quality from implementation of the preferred alternative would generally be avoided by using silt fences and other best management practices, as appropriate. Impacts to water quality would be negligible as a result.

Because (1) there would be no impacts to wetlands and (2) to floodplains, and (3) impacts to water quality would be negligible, water resources is dismissed as a detailed impact analysis topic in this environmental assessment / assessment of effect.

Air Quality

The 1963 Clean Air Act, as amended (42 USC 7401 *et seq.*), requires land managers to protect air quality. Section 118 of the Clean Air Act requires parks to meet all federal, state, and local air pollution standards. *NPS Management Policies* (2001) addresses the need to analyze potential impacts to air quality during park planning. Petrified Forest National Park is classified as a Class I air quality area under the Clean Air Act, as amended. The Clean Air Act also states that the federal land manager has an affirmative responsibility to protect the park's air quality-related values (including visibility, plants, animals, soils, water quality, cultural and historic resources and objects, and visitor health) from adverse air pollution impacts.

Implementation of the proposed action could temporarily affect local air quality through increased dust and vehicle emissions. Hydrocarbon, nitrous oxide, and sulfur dioxide emissions would be rapidly dispersed by the prevalent winds in the project area. Dust stirred up by construction equipment would increase airborne particulates intermittently, but this phenomenon is not expected to be appreciable. Mitigating measures such as water sprinkling to reduce dust and limiting idling of construction equipment would be used, as appropriate, to mitigate effects.

Overall, impacts to air quality from dust and construction equipment emissions would be negligible and temporary. Effects would occur only during construction; no long-term, adverse effects would be expected; therefore, air quality is dismissed from detailed analysis.

Socioeconomic Environment

Implementation of the preferred alternative could provide a negligible beneficial impact to the economies of Holbrook, Arizona, and Navajo and Apache Counties (e.g., minimal increases in employment opportunities for the construction work force and revenues for local businesses and government from construction activities and workers). Construction activities are expected to take nine months and require three to five workers. There is a small store located in the Painted Desert Inn that is run by the Petrified Forest Museum Association, which is a park cooperating association. Although the store would be closed during implementation of the preferred alternative, the effects would only last the duration of the construction and would affect one employee and reduce proceeds from the three stores operated by the Petrified Forest Museum Association by approximately 11%. The association has indicated that they will make every attempt to relocate the current employee through the duration of the closure. Therefore, socioeconomics is dismissed as an impact topic.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United Sates to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes.

There are no Indian trust resources in Petrified Forest National Park. The lands comprising the park are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians; therefore, Indian trust resources is dismissed as an impact topic in this environmental assessment / assessment of effect.

Prime and Unique Farmlands

In August 1980, the Council on Environmental Quality directed that federal agencies assess the effects of their actions on farmland soils classified by the United States Department of Agriculture's Natural Resources Conservation Service as prime or unique. Prime or unique farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. According to a letter from the Natural Resources Conservation Service dated June 21, 2001, the proposed project is exempt from the requirements of the Farmland Protection Policy Act because there are no prime farmlands associated with the project area, and there are no potential impacts that would directly affect wetland areas associated with agriculture. Therefore, prime and unique farmlands is dismissed from detailed analysis in this environmental assessment / assessment of effect.

Ecologically Critical Areas, Wild and Scenic Rivers, Other Unique Natural Areas

No areas within the park have been designated as ecologically critical, and there are no existing or potential Wild and Scenic Rivers within the park. Petrified Forest National Park is an important natural area, and the alternatives would not threaten the qualities and resources that

make the park special. This topic is, therefore, dismissed from detailed analysis in this environmental assessment / assessment of effect.

Environmental Justice

Executive Order 12898 (*General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*) requires all agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations or communities. No alternative would have disproportionate health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's *Draft Environmental Justice Guidance* (July 1996). Therefore, environmental justice is dismissed from detailed analysis in this environmental assessment / assessment of effect.

PREFERRED ALTERNATIVE AND OTHER ALTERNATIVES

INTRODUCTION

The alternatives section describes two management alternatives for rehabilitation of the Painted Desert Inn and cabins. Alternatives for this project were developed to resolve cultural resource issues (specifically preservation of the National Historic Landmark and cultural landscape), health and safety issues, visitor experience issues, and park operations issues.

The Painted Desert Inn was originally constructed in 1924, and named the Stone Tree House (figure 7). The inn was built to provide dining, souvenir shopping, and lodging services to tourists. The National Park Service purchased the Stone Tree House in 1936, and in the period from 1937 to 1940, the structure was rebuilt by the Civilian Conservation Corps. The new structure, named the Painted Desert Inn, performed the same functions as the Stone Tree House, but looked very different. The inn was built using native materials and incorporated petrified wood from the old Stone Tree House. While the Stone Tree House was a ranch-style building, the inn is two stories and banked into the hillside to give the impression of a much lower building. The rebuilt inn was designed by Lyle E. Bennett and the interior of the inn contains design work by Mary E.J. Colter and murals by Hopi artist Fred Kabotie (figure 8). During reconstruction, the landscape surrounding the building was regraded and the terraces of the Stone Tree House evolved into the present day courtyards of the inn (OCULUS 2003).

FIGURE 7. STONE TREE HOUSE

The Painted Desert Developed Area, constructed by the Civilian Conservation Corps, included the inn as well as a power station, service station, garage, and two employee cabins. Only the inn and the two cabins remain today. The other buildings were demolished in the early 1960s as part of the park's Mission 66 reconstruction project. The Mission 66

construction shifted many functions to the new Painted Desert Visitor Center. The closure of the inn in 1963 coincides with the opening of the new Painted Desert Visitor Center (OCULUS 2003).

FIGURE 8. MURAL BY HOPI ARTIST, FRED KABOTIE

The Painted Desert Inn was listed as a National Historic Landmark in 1987. The inn and surrounding area (including the cabins) was listed on the NRHP in 1975. Since 1975, there have been ongoing, intermittent attempts to rehabilitate and repair portions of the inn. The inn has both interior and exterior structural problems that threaten the integrity of the building.

This section describes two alternatives that were developed for rehabilitation of the Painted Desert Inn and cabins 76 and 77, and improvements to the wastewater treatment system that serves the structures at Petrified Forest National Park. These alternatives include alternative A: no-action alternative and alternative B (NPS preferred alternative): Painted Desert Inn and cabins 76 and 77 rehabilitation. Additional alternatives considered and dismissed from detailed analysis are also discussed in this section. A summary table comparing the environmental consequences of each alternative is presented at the end of the alternatives section.

ALTERNATIVE A: NO-ACTION ALTERNATIVE

The no-action alternative describes the action of continuing the present management operation and condition of the Painted Desert Inn and cabins 76 and 77. It does not imply or direct discontinuing the present action or removing existing uses, developments, or facilities. The no-

action alternative provides a basis for comparing the management direction and environmental consequences of the preferred alternative. Should the no-action alternative be selected, the National Park Service would respond to future needs and conditions associated with the Painted Desert Inn without major actions or changes in the present course.

Implementation of the no-action alternative means that overall improvements to the structures and wastewater system would not occur. With this alternative, the park would continue maintaining the structures and wastewater system in their current condition. The no-action alternative does not preclude short-term, minor repair or improvement activities for the inn, cabins, and wastewater system that would be a part of routine maintenance for continuing operation.

Due to expansive soil conditions and building and site drainage, the Painted Desert Inn would continue to shift causing interior leakage and wall cracking. Portions of the inn would remain inaccessible to some visitors. The existing sewage disposal and treatment system (septic system and leach field) at the inn would continue to experience problems and periodically overflow causing the trail to the Painted Desert to flood and erode. The sewage disposal system would also require frequent pumping to maintain the system. No fire suppression and limited detection systems would be available within the Painted Desert Inn to protect its contents from fire and theft. Although intermittent repairs would continue to be made, the entire building would remain in a constant state of disrepair.

The existing cabins would continue to be uninhabitable due to their condition. The cabins would continue to degrade without significant repairs. The buildings would remain inaccessible to certain populations. No fire suppression or security would exist within the buildings.

The no-action alternative is prescribed by Council on Environmental Quality regulations and serves as a benchmark for comparing the management direction and environmental consequences of the preferred alternative. Should the no-action alternative be selected, minor repairs and improvements would continue to be made to the Painted Desert Inn and associated wastewater system to allow continued operation of the building in its current capacity. No repairs would be pursued for the cabins.

ALTERNATIVE B: PREFERRED ALTERNATIVE

The preferred alternative presents the National Park Service proposed action and defines the rationale for the action in terms of resource protection and management, visitor and operational use costs, and other applicable factors. The preferred alternative meets the park's planning objectives of preserving historic structures, creating universally accessible facilities, and providing safe and reliable wastewater treatment.

The 1993 *General Management Plan* called for a cultural landscape study, developed a historic preservation guide for the Painted Desert Inn, and called for improvements in the sewer system at Painted Desert Inn. A cultural landscape study was completed by Sloan and Associates in 2002. A cultural landscape treatment study of the Painted Desert Inn was completed by OCCULUS in 2003 (OCULUS 2003). The study looks at activities necessary for

the historic preservation of the inn. The preferred alternative of this environmental assessment / assessment of effect would provide historic preservation of the inn and improve the inn's sewer system.

Painted Desert Inn and Cabins 76 and 77

The preferred alternative would allow the continued use of the Painted Desert Inn as a visitor center with interpretive activities and exhibits, as well as a small store and offices. The residential cabins would be restored as living quarters for researchers. The rehabilitation of the Painted Desert Inn and the associated residential cabins would require a number of stabilization and repair items. Exterior repairs would include stucco replacement; repair of windows, frames, and trim; repair of exterior doors, frames and trim; replacement and treatment of exterior viga ends; repair of exterior walks and associated landscape; and drainage improvements. Interior repairs would include windows, frames and trim; mural conservation; interior doors, frames, and trim; improvements for universal accessibility; repair and restoration of interior finishes and cabinetry; upgrading of the electrical system; and improvements to mechanical systems. The buildings would be made universally accessible and would have fire suppression sprinkler systems, fire/intrusion detection systems, wall movement monitors, and internal environmental monitoring systems installed. The parking areas and roads would not be affected by the proposed action; however, sidewalk grading may be necessary to achieve the appropriate slope for accessibility. Detailed information on the proposed building renovations is discussed below.

Interior and Exterior Repairs

Exterior landscape and drainage. Gutters have separated and patio drains have become clogged over the years allowing water to drain down the exterior walls to the building foundation and to pool in the courtyards. Gutters would be repaired and some would be extended to direct runoff farther from the building. Drains would be cleared. Sidewalks, flagstone courtyards, and the ground surface would be recontoured to promote drainage away from the buildings.

Exterior walls, windows, doors, and trim. Weathering and heaving has resulted in degradation to the exterior of the inn and cabins. The exterior cracking in the stucco base coat would be repaired; windows and door trim and frames would be repaired; and exterior viga ends would be replaced where necessary. Once all repairs have been completed, the historic finishes to the stucco and wood features would be restored.

Interior walls, windows, doors, and trim. Interior walls have cracked due to leaks and heaving. Cracks in interior walls would be patched and re-plastered. Cabinetry and window and door frames and trim would be repaired. Walls, trim, and cabinets would be refinished to reflect historic designs and color schemes.

FIGURE 9. INTERIOR DAMAGE AS A RESULT OF LEAKAGE

FIGURE 10. EXTERIOR WALL STUCCO DAMAGE

FIGURE 11. INTERIOR DAMAGE FROM LEAKAGE AND CRACKING FROM SETTLEMENT

FIGURE 12. WALL CRACKING

FIGURE 13. PAINTED DESERT INN MURAL

Mural conservation (Painted Desert Inn only). The paints used in the murals are vulnerable to extreme heat, dryness, and rapid environmental changes. The water-base tempera paint is also susceptible to bleeding and staining from contact with water and rub marks from physical abrasion. The walls that the murals are painted on are susceptible to cracking and heaving. Repairs to the inn roof (different project) should minimize contact with water. The proposed action should minimize wall cracking. Mural treatments would include filling loosened plaster with inert filling compound, repainting fills, and refreshing paint, as necessary. This work would be completed by a skilled art conservator in accordance with approved National Park Service standards and guidance.

Mechanical and electrical system upgrades. Mechanical and electrical systems would be repaired and upgraded to meet current codes and to address changes in building uses and room configurations.

IMPROVEMENTS

Accessibility. Sidewalks and flagstone courtyards would be redesigned, recontoured, and in some cases, the elevation raised to improve accessibility to lower exterior spaces, desert overlooks, and entrances to the inn and restrooms. The sidewalk adjacent to the historic kitchen area would be regraded and a new doorway would be created at the existing front window to allow access for all visitors through the kitchen. The former kitchen would be converted to visitor orientation and interpretive exhibits. The doorway from the kitchen area to the lunchroom would need to be widened to meet accessibility requirements. By completing these actions, the Painted Desert Inn would meet Americans with Disabilities Act standards for access to public buildings.

Installation of fire suppression systems. Sprinkler systems would be installed on the interior ceilings and/or upper walls of the inn and cabins and would be designed to avoid water damage to murals or other sensitive interior features (e.g., museum collections). Exposed sprinkler pipes would be painted to match the surrounding surfaces. The system is designed to National Fire Protection Association standards with a design density of 0.1-gallon-per-minute per square foot.

Installation of wall movement and internal environmental monitoring (Painted Desert Inn only). Wall movement monitors would be installed on main support walls to monitor for any structural changes. Environmental monitors would be installed to monitor for potential circuitry problems (such as appliance short circuiting, ground fault, fire alarm system low battery), and to evaluate heating/cooling problems, and water pressure problems. Internal environmental monitoring systems would also include manual pull stations to activate fire response manually.

Update fire/intrusion detection systems. Fire and intruder detection systems would be installed at the Painted Desert Inn to meet current requirements. Detection systems would include smoke and motion detection—certain of the detection boxes would sound a horn when activated. Motion detectors would be set on an entrance/exit delay to allow setting and leaving or entering and disarming. Motion detectors would be located in a position that would entrap an intruder as they enter. Smoke detectors would be located on the ceilings in approximately the center of the room. The detection systems would be designed to blend with the surroundings.

Drainage Control

Drainage controls would be implemented as part of the rehabilitation of the Painted Desert Inn. Drainage controls would protect the subsurface expansive soils from water penetration and minimize damage to the inn as a result of expansion of the soils. The inn roof and associated roof drainage is currently being repaired. Under the preferred alternative, the

outside areas surrounding the inn would be regraded to promote surface drainage away from the building. Patios and paths would be reworked, with the existing stones numbered and replaced in the same location following regrading. During the regrading work, buried lines would be installed to convey water from the downspouts to a discharge point well away from the inn. Once the regrading work is completed, the area surrounding the inn would be landscaped with native plant species.

Wastewater System

A new 6-inch sewerline would be installed from the inn to a new 2,500-gallon septic tank and pump station. From the pumping station, septic would be routed through a new 3-inch pipeline to the wastewater treatment system at the Painted Desert headquarters complex (figures 14 and 15). The septic tank and pump station would be located in the same area as the existing sewage lagoons. A grinder would be installed at the inlet end of the pipe to allow for use of a smaller diameter pipe. The 3-inch pipeline would follow the existing sewage lagoon access road, cross the north access road to the inn parking lot, and be routed for a short distance across the area between the inn parking lot and the main park road. The line would cross the main park road just north of the south entrance to the inn parking lot and be routed along the main park road to the Painted Desert headquarters complex, with placement 5 feet from the edge of the pavement. Approximately 9,600 feet of pipeline would be located along or within existing roadways. Five hundred feet would be located in a currently undisturbed area between the Painted Desert Inn parking lot and the main park road. Another 180 feet would replace existing pipeline from the Painted Desert Inn to the treatment tanks. Placement depth of the pipeline would vary based on soils and bedrock along the roadway. Depths are expect to vary from near surface, where the e pipeline would need to be insulated, to a depth of 3 to 4 feet. At the Painted Desert headquarters complex, the pipeline would join with the existing pipeline system carrying flows to the headquarters sewage lagoons. The existing leachfield, which serves both the Painted Desert Inn and the cabins, would be abandoned and reclaimed. The cabins sewerlines would be tied into the new pipeline upgradient from the septic tank and grinder.

Sustainability

The National Park Service has adopted the concept of sustainable design as a guiding principle of facility planning and development. The objectives of sustainability are to design monument facilities to minimize adverse effects on natural and cultural values, to reflect their environmental setting, and to maintain and encourage biodiversity; to construct and retrofit facilities using energy-efficient materials and building techniques; to operate and maintain facilities to promote their sustainability; and to illustrate and promote conservation principles and practices through sustainable design and ecologically sensitive use. Essentially, sustainability is living within the environment with the least impact on the environment. The preferred alternative subscribes to and supports the practice of sustainable planning, design, and use of the historic structures of the Painted Desert Inn and cabins.

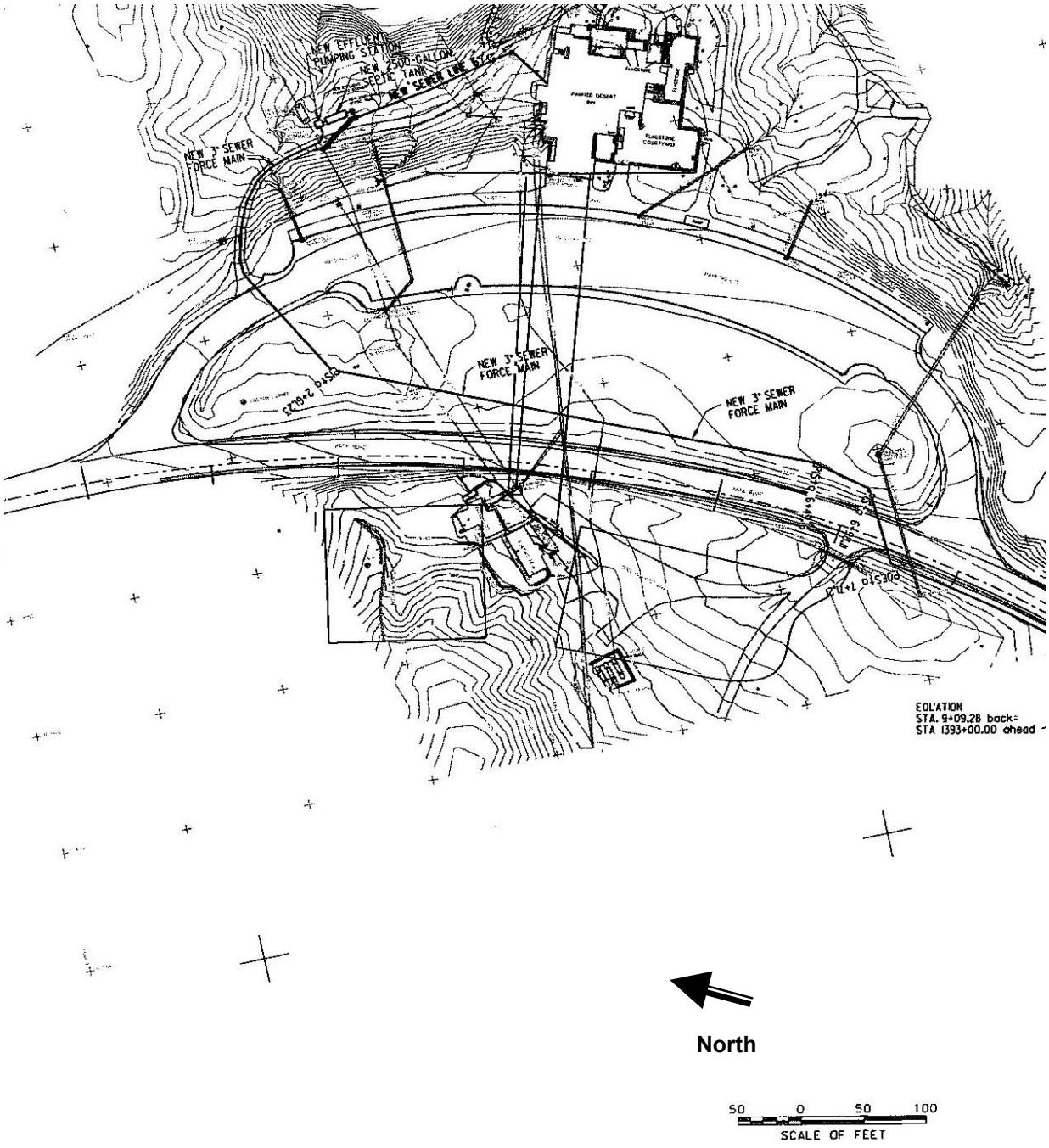

FIGURE 14. PROPOSED SEWERLINE ROUTING IN THE VICINITY OF THE PAINTED DESERT INN

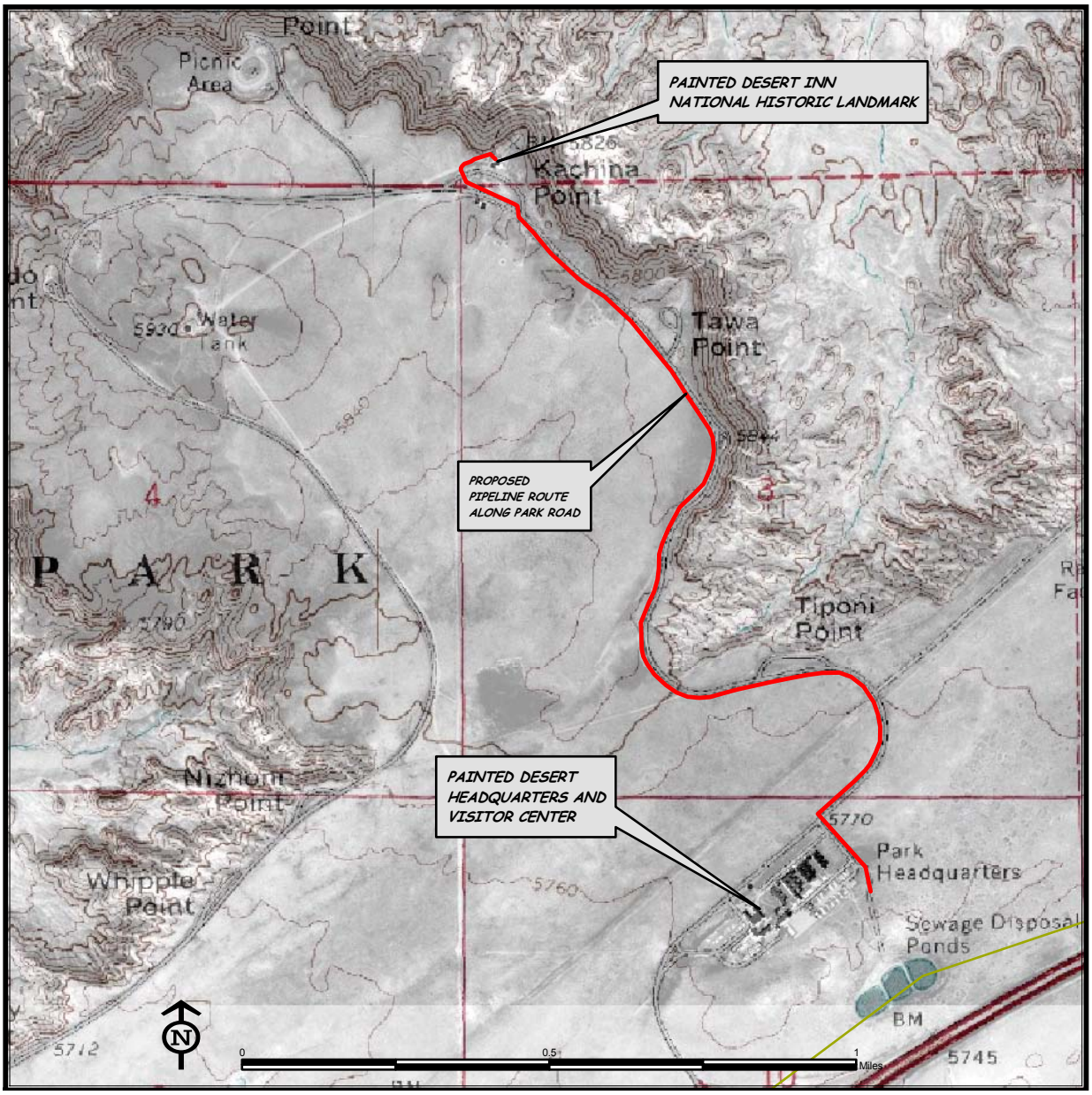

FIGURE 15. PROPOSED SEWERLINE ROUTING TO PAINTED DESERT HEADQUARTERS COMPLEX

Construction Activities

The residence cabins are currently closed to the public and would continue to be closed throughout the construction. The Painted Desert Inn would also be closed to the public to avoid any potential visitor safety issues. There would be no access to the building and the parking lot would be blocked, allowing construction access only.

Construction zones would be identified and fenced with construction tape or some similar material prior to any construction activity. The fencing would define the construction zone and confine activity to the minimum areas required for the project. All protection measures would be clearly stated in the construction specifications and workers would be instructed to avoid areas beyond the construction zone.

Construction work would take place during daylight hours between approximately 6:00 A.M. and 6:00 P.M. The work would be expected to begin in the summer or fall of 2004. Staging areas for equipment and materials would be within the existing buildings or in the associated parking lots. Some pipe for the sewerline could also be stored at the Painted Desert headquarters complex.

Construction debris and rubbish would be collected in clearly marked trash bins and hauled offsite for disposal.

The new pipeline would be placed in a trench that for most of the length would follow the main park access road. Trenching operations would use a rock saw, backhoe, and/or trencher. As the trench is dug, the excavated material would be side-cast for storage. When trenching is complete, bedding would be placed and compacted in the bottom of the trench, and the pipeline would be installed in the bedding. Backfilling and compaction would begin immediately after the lines are placed into the trench, and the trench surface would be returned to pre-construction contours. All trenching operations would follow guidelines to minimize vegetation disturbance and restore affected areas to their original form, wherever possible, as approved by park staff.

Topsoil from excavations would be removed and stockpiled. Local topsoil would help preserve microorganisms and seeds of native plants in the soil. The topsoil would be respread as close to its original location as possible.

During construction of the pipeline to the Painted Desert headquarters complex, there may be traffic delays associated with trenching activities. Traffic may be narrowed to one lane to allow for safe working conditions. Traffic delays would be kept to 20 minutes or less.

Mitigation Measures for the Preferred Alternative

Mitigation measures are presented as part of the preferred alternative. These actions have been developed to lessen the adverse effects of the preferred alternative. Some activities qualifying as mitigation are addressed above in the general construction discussion.

Construction activities would primarily be conducted in previously disturbed areas. Staging areas for construction vehicle and equipment storage would be located in previously disturbed areas and would be clearly identified in advance. Construction workers and supervisors would be informed of the special sensitivity of Petrified Forest National Park resources (such as petrified wood and archeological resources) and the laws and guidelines to ensure their protection.

Outside work would be conducted to minimize effects to air quality. Dust abatement measures, such as watering active work areas, would be conducted when soil is exposed to wind erosion. Vehicle emission controls shall be implemented for all heavy equipment used in the project. These controls should include proper tuning and maintenance of construction equipment, and not allowing equipment to idle for significant periods of time.

Milk snakes (*Lampropeltis triangulum*) have been observed in the area of the Painted Desert Inn. Construction workers would be trained in the identification of milk snakes and care would be taken to ensure that individuals of this species are not harmed by construction activities in this area.

If archeological sites are discovered and cannot be avoided, the information they possess regarding prehistoric and/or historic lifeways would be recorded and recovered in consultation with the Arizona State Historic Preservation Office and interested federally recognized American Indian tribes. If previously unknown archeological resources are discovered during construction activities, all work in the immediate area of the discovery would cease until the resources could be identified and documented. Work could resume only after an appropriate mitigation strategy is developed in consultation with the Arizona State Historic Preservation Office and after archeological clearances are obtained.

In compliance with the Native American Graves Protection and Repatriation Act of 1990, the National Park Service would also notify and consult with concerned tribal representatives for the proper treatment of human remains, funerary, and sacred objects should these be discovered during the course of the project.

If cultural resources that would be adversely impacted by the proposed action are NRHP eligible or listed resources, the park would consult with the Arizona State Historic Preservation Office. A memorandum of agreement, in accordance with 36 CFR Part 800.6[c], *Resolution of Adverse Effects-Memorandum of Agreement*, must be executed and implemented between Petrified Forest National Park and the Arizona State Historic Preservation Office to resolve the adverse effects to cultural resources. The memorandum of agreement would stipulate how the adverse effects would be mitigated. Because of the adverse effects to cultural resources, the memorandum of agreement must be negotiated and signed before the Finding of No Significant Impact can be signed.

General Construction Schedule and Costs

Renovations would begin in the summer of 2004, and are expected to take approximately one year to complete. Construction costs are estimated at $1,710,215, with life-cycle costs of $2.5 million.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with Director's Order – 12, the National Park Service is required to identify the environmentally preferred alternative in all environmental documents, including environmental assessments. The environmentally preferred alternative is determined by applying the criteria suggested in NEPA, which is guided by the Council on Environmental Quality. The Council on Environmental Quality provides direction that "[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in section 101 of NEPA, which considers:

1. Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assuring for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserving important historic, cultural, and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources (NEPA, section 101)."

The environmentally preferred alternative in this environmental assessment / assessment of effect is the proposed action. This alternative was selected based on the following criteria:

- preventing loss of natural resources
- preventing loss of cultural resources
- protecting public health, safety, and welfare
- improving operations efficiency and sustainability
- protecting employee safety and welfare

In short, this alternative would minimize disturbance to known resources; limit introduction of new human-made features into the environment; preserve historic structures; provide protection of public and employee health, safety, and welfare; and improve day-to-day operations.

The no-action alternative would allow the inn and associated historic buildings to continue in a state of disrepair and would not preserve this important cultural resource. No action would also continue to allow the wastewater disposal system to overflow, potentially causing degradation to natural resources in the area and creating health and safety issues with visitors and park employees.

ALTERNATIVES CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS

Alternative strategies were considered to address specific project objectives. Other strategies for wastewater treatment included construction of a new septic system and leachfield or an evapotranspiration system adjacent to the inn. Construction of a new leachfield was eliminated from further study because the soils surrounding the inn are not suitable for a leachfield, nor do they meet state standards for septic systems. The soils are too shallow with many rocks. Evapotranspiration fields require additional maintenance and are prone to failure (e.g., overtopping due to high use or low evaporation and/or transpiration). These alternatives do not meet the planning objectives for providing an effective and efficient wastewater disposal system that eliminates overflows and minimizes maintenance.

Two alternatives were also examined and eliminated addressing accessibility of the Painted Desert Inn. The first alternative included access through the existing entrance to the ranger room. However, this would require the ranger room to become the new visitor orientation and interpretive exhibit room. A closet would be eliminated, a new doorway would need to be constructed to access the trading post and a ramp would be necessary to meet the elevation of the trading post room. The old ranger desk would be removed to curatorial storage. This alternative makes a significant change to the interior of the Painted Desert Inn, removing several items that were defined as character-defining elements in the Historic Structure Report. In addition, it would be very difficult to make the ramp appear to be a part of the historic structure and the visitor visual experience at the entry could be impacted.

The second alternative would have created a universally accessible entrance through the main lunchroom doorway. A universally accessible flagstone ramp would be constructed along the south side of the lunchroom terrace and the main lunchroom doorway would be widened. Slight changes would be made to the ranger room, including shifting of the ranger desk, removal of the room partition, and reduction in the size of the existing closet. This change would result in moderate exterior changes, including ramps from the entrance courtyard to the lunchroom terrace and in the lunchroom terrace to the lunchroom main doorway. This alternative was dismissed due to the alterations of the historic character of the outside terrace space by construction of a ramp and the modification of the historic building entrance/exit through construction of a courtyard ramp.

COMPARATIVE SUMMARY OF NO-ACTION AND PREFERRED ALTERNATIVES

TABLE 1. COMPARATIVE SUMMARY OF ALTERNATIVES AND EXTENT TO WHICH EACH ALTERNATIVE MEETS THE PROJECT OBJECTIVE

Alternative A: No Action	Alternative B: Preferred Alternative
The park would continue to maintain the Painted Desert Inn and cabins and associated wastewater system in their current condition. The Painted Desert Inn would continue to shift causing interior leakage and wall cracking. Portions of the inn would remain inaccessible to some visitors. The existing sewage disposal and treatment system (septic system and leachfield) at the inn would continue to experience problems and periodically overflow. The sewage disposal system would also require frequent pumping to maintain the system. No fire suppression and limited theft detection systems would be available within the Painted Desert Inn to protect its contents from fire and theft. Although intermittent repairs would continue to be made, the entire building would remain in a constant state of disrepair. The existing cabins would continue to be uninhabitable due to their condition. The cabins would continue to degrade without major repairs. The buildings would remain inaccessible to certain populations. No fire suppression or security would exist within the buildings. <u>Meets project objectives?</u> **No**. Continuing the existing conditions does not bring the structures into compliance with life safety codes, appropriate building codes, Uniform Building Accessibility Standards, National Park Service guidelines, and historic preservation policies. Also, operational efficiency would not be improved.	The preferred alternative would allow the continued use of the Painted Desert Inn as a visitor center with interpretive activities and exhibits, as well as a small store and offices. The residential cabins would be restored as living quarters for researchers. Exterior repairs would include stucco replacement; repair of windows, frames, and trim; repair of exterior doors, frames and trim; replacement and treatment of exterior viga ends; repair of exterior walks and associated landscape; and drainage improvements around the exterior. Interior repairs would include repair of windows, frames, and trim; mural conservation; repair of interior doors, frames, and trim; repair and restoration of interior finishes and cabinetry; upgrading of the electrical system; and repair and improvements to mechanical systems. In addition to building repairs, the Painted Desert Inn would be made universally accessible and would have fire suppression sprinkler systems, fire/intrusion detection systems, wall movement monitors, and internal environmental monitoring systems installed. The parking areas and roads would not be affected by the proposed action; however, sidewalk grading may be necessary to achieve the appropriate slope for accessibility. <u>Meets project objectives?</u> **Yes.** Renovations to the Painted Desert Inn and cabins would preserve and protect these historic structures by bringing them into compliance with life safety codes, building codes, National Park Service guidelines, and historic preservation policies. Renovations would also provide accessibility to all visitors to the Painted Desert Inn and improve operational efficiency.

COMPARATIVE SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

TABLE 2. COMPARATIVE SUMMARY OF POTENTIAL ENVIRONMENTAL CONSEQUENCES

Potential Environmental Impacts		
Impact Topic	**Alternative A: No Action**	**Alternative B: Preferred Alternative**
Historic Structures	No new impacts to historic structures. Continued attention to only the most severe damage would result in continued degradation of the inn and cabins. Continued lack of fire suppression systems could result in damage or total loss of the Painted Desert Inn or cabins. Effects would be local, long-term, moderate, adverse impacts to historic structures.	The historic structures would be restored and interpretive exhibits installed appropriate for the period and significance of the inn. Fire and theft detection systems, and fire suppression systems would prevent a catastrophic loss of these structures. The work would allow these historic structures to be preserved and would provide a local, long-term, moderate, beneficial impact.
Cultural Landscape	Under the no-action alternative, limited maintenance and repairs would continue to be performed on the buildings and immediate landscape to address safety and operational concerns. To date, such activities have affected the tone of the landscape, but not its emotive power or the historical integrity of the landscape. Therefore, current impacts to the cultural landscape are long term, minor, and adverse.	Painted Desert Inn and associated cabins 76 and 77 would undergo restoration, and outside walkways and courtyards would be regraded and repaired. Contributing land uses and the historic circulation at the inn would be altered, but all landscape features would retain, as much as possible, distinctive materials, features, spaces, and spatial relationships. The overall effects of the preferred alternative would provide long-term, minor, beneficial impacts for cultural landscape.
Museum Collections	Museum collections exhibited at the Painted Desert Museum would remain susceptible to damage or destruction from water or fire, a potential local, short- and long-term, minor, adverse impact.	Museum collections would be protected from water damage as well as fire and theft with the planned renovations. The effects would be local, long term, minor, and beneficial.
Soils	No new impacts to soils.	There would be short-term, local, minor, adverse impacts to soils as a result of the preferred alternative. Soils replacement and reclamation would occur upon completion of the construction, so there would be no long-term effects.
Biotic Communities	No new impacts to biotic communities.	Work on the wastewater pipeline could displace or disturb vegetation and small animals; however, the adverse impacts are expected to be short term, local, and minor.

Potential Environmental Impacts		
Impact Topic	**Alternative A: No Action**	**Alternative B: Preferred Alternative**
Park Operations	Park maintenance would continue to respond to problems with the sewage treatment and disposal system at the inn, as well as continuing to make repairs to the most severe damage at the inn. Effects to park operations would be regional, long term, minor, and adverse. Operations within Painted Desert Inn would continue with no new impact.	During the construction period, park personnel would need to provide oversight for operations within Painted Desert Inn, which would result in a short-term, minor, adverse impact to park operations. The systems that now require frequent maintenance and repairs would be renovated so that the overall impact to park operations in the long term would be negligible and beneficial. In the long term, the Painted Desert Inn store would return to normal operation and be slightly enhanced by improved access to the inn. The renovations would result in a local, long-term, negligible, beneficial impact to park operations.
Health and Safety	The sewage overflows would continue to pose a potential health threat. Uneven sidewalks, pathways, and courtyards, as well as the need for repair of steps and other segments of the inn would continue to pose a potential safety threat. Effects would be local, short and long term, minor, and adverse.	The short-term construction activities could result in local, minor, adverse impacts to the health and safety of workers on the construction project; however, this would be mitigated by safe work practices employed by the contractor. The renovations would eliminate public and employee health and safety concerns resulting in a local, long-term, minor, beneficial impact to health and safety.
Visitor Experience	The no-action alternative would result in no changes to the current visitor experience. The inn and cabins would continue to not be accessible to certain populations and restrooms would continue to be periodically inaccessible due to overflows and maintenance. The effects would be local, long term, minor, and adverse.	The inn and cabins would be made accessible to all populations. The inn would be restored so that the overall look would be pleasing to visitors with new interpretive exhibits. Restroom facilities would be improved. The effects would be local, long term, minor, and beneficial.

AFFECTED ENVIRONMENT

Detailed information on resources of Petrified Forest National Park can be found in the *General Management Plan* (NPS 1993) and the park's *Resources Management Plan* (NPS 1998). A description of the park and resources potentially affected by the rehabilitation project follows.

LOCATION AND GENERAL DESCRIPTION OF THE PARK

Petrified Forest National Park is located in northeastern Arizona, about 100 miles east of Flagstaff, Arizona, and about 70 miles west of Gallup, New Mexico. The park lies within Navajo and Apache Counties, although the work associated with this project is located entirely in Apache County. It is bordered by the Navajo Reservation to the north and northwest and by Hopi-owned land, private lands, state trust lands, and U.S. Bureau of Land Management lands to the south, east, and west. Several other Indian reservations and national forests are nearby. Interstate Highway 40 and the Burlington Northern–Santa Fe Railroad transect the park from east to west.

Petrified Forest National Park features one of the largest and most colorful concentrations of petrified wood in the world. Exposures of the 225-million-year-old Chinle formation extend throughout the Painted Desert. Fossils preserved in this formation appear to represent an entire ecosystem. These rare accessible associations of animal and plant fossils make it possible to learn more about the Late Triassic period here than anywhere else in the world.

The park also contains historic structures, archeological sites, petroglyphs, wildlife, and interpretive exhibits. Of the park's 93,533 acres, about 54% is designated wilderness, arranged in two units: the Painted Desert unit in the north segment of the park (43,020 acres), and the Rainbow Forest unit in the southeast segment of the park (7,240 acres). Air quality in the park is usually good, providing opportunities to view scenic vistas, including mountain peaks more than 100 miles away.

The vegetation of Petrified Forest is varied. Soil and terrain conditions have resulted in a mosaic of grass and shrub communities. Sparse stands of juniper are found on rocky upper slopes and mesa caps. A limited stand of pinion-juniper woodland is found on Chinde Mesa, along the park's far northern boundary. Grasslands occupy middle and upper plateau areas where soils are deeper and richer. Since grazing was eliminated from the park in the 1960s, the shortgrass prairie has recovered in many areas. Desert plant communities are found in the lower elevations where soils are heavy and water availability low. The most diverse area for plants is the Puerco River corridor; 40 species (30 native to North America) can be found here. Willows, native cottonwoods, and the dominant exotic shrub, tamarisk, are typical of the Puerco River riparian zone. Shrubs typical of the Great Basin and cool desert such as big sagebrush, shadscale, greasewood, and winterfat also occur in the park.

Park elevation averages 5,600-feet above sea level, resulting in a cool, arid climate. Annual precipitation averages less than 10 inches, about half of which is from late summer

thunderstorms. Midsummer temperatures can exceed 100 degrees Fahrenheit (38 degrees Celsius), and nights can be surprisingly cool. Although winter nights are often colder than freezing, daytime temperatures are typically moderate.

HISTORIC STRUCTURES

In October 1975, the Painted Desert Inn was nominated to and listed on the NRHP for state significance in contexts of art, architecture, politics/government, and park/local history (OCULUS 2003). Shortly thereafter, the inn received a designation as a Bicentennial Travel Center and was rehabilitated. The inn was subsequently listed as a National Historic Landmark in May 1987, and received no further rehabilitation between 1987 and 1989. Although the nomination for the NRHP discusses only the inn, the actual designation applies to the inn and an area surrounding the inn that includes the two cabins and several overlooks (figure 16). The inn (excluding the cabins) was designated a National Historic Landmark in 1987. The designation focuses on the building and does not address associated cultural landscape features (which are addressed below). The National Historic Landmark designation lies in the inn's reflection of the "masterful combination of architecture and design resulting from the fine architectural skills of National Park Service Architect Lyle E. Bennett and enhanced by the artistic skills of Hopi artist, Fred Kabotie." It also has regional significance as a product and symbol of New Deal work relief programs (NPS n.d.).

The Painted Desert Inn, originally constructed in 1924 of petrified wood and stone, was gutted and rebuilt between 1937 and 1940 by the Civilian Conservation Corps using local materials, including some petrified wood. The resulting Pueblo Revival structure is two stories, but is banked into the hillside so it exposes a low profile to the Painted Desert. The thick stone walls are covered with earth-toned stucco. Interior spaces are finished with log vigas, carved posts, flagstone floors, and wood-framed casement windows. A painted glass skylight of Hopi pottery motifs, designed by Lyle Bennet in 1937 and murals by Hopi artist Fred Kabotie painted in 1947, enhance the building's combination of architecture and design. The 28 rooms were originally used for public information, restrooms, park offices, dining rooms, soda fountain, bar, trading post, and six sleeping rooms. Over time, the inn has badly deteriorated. During the late 1960s and early 1970s, the building's condition was so poor it was closed to the public. It was reopened in 1976 for the Bicentennial and has closed only temporarily since for repairs. Today, it is minimally used for information and orientation, book sales, building tours, restrooms, and a few display cases.

The construction of the cabins coincided with the rebuilding of the inn. They were part of a planned complex of seven park residences clustered across the rim road from the inn. The small structures, the only homes completed as part of the project, were constructed of plastered stone with flat roofs and projecting vigas, similar to the inn. The cabins were originally intended to be used as single-employee housing (without kitchens), but near the end of construction plans were altered and kitchens were added. The buildings eventually became residences for the families of permanent rangers. This period of (Civilian Conservation Corps) construction also consisted of a power station, gas station, and garage, none of which remain.

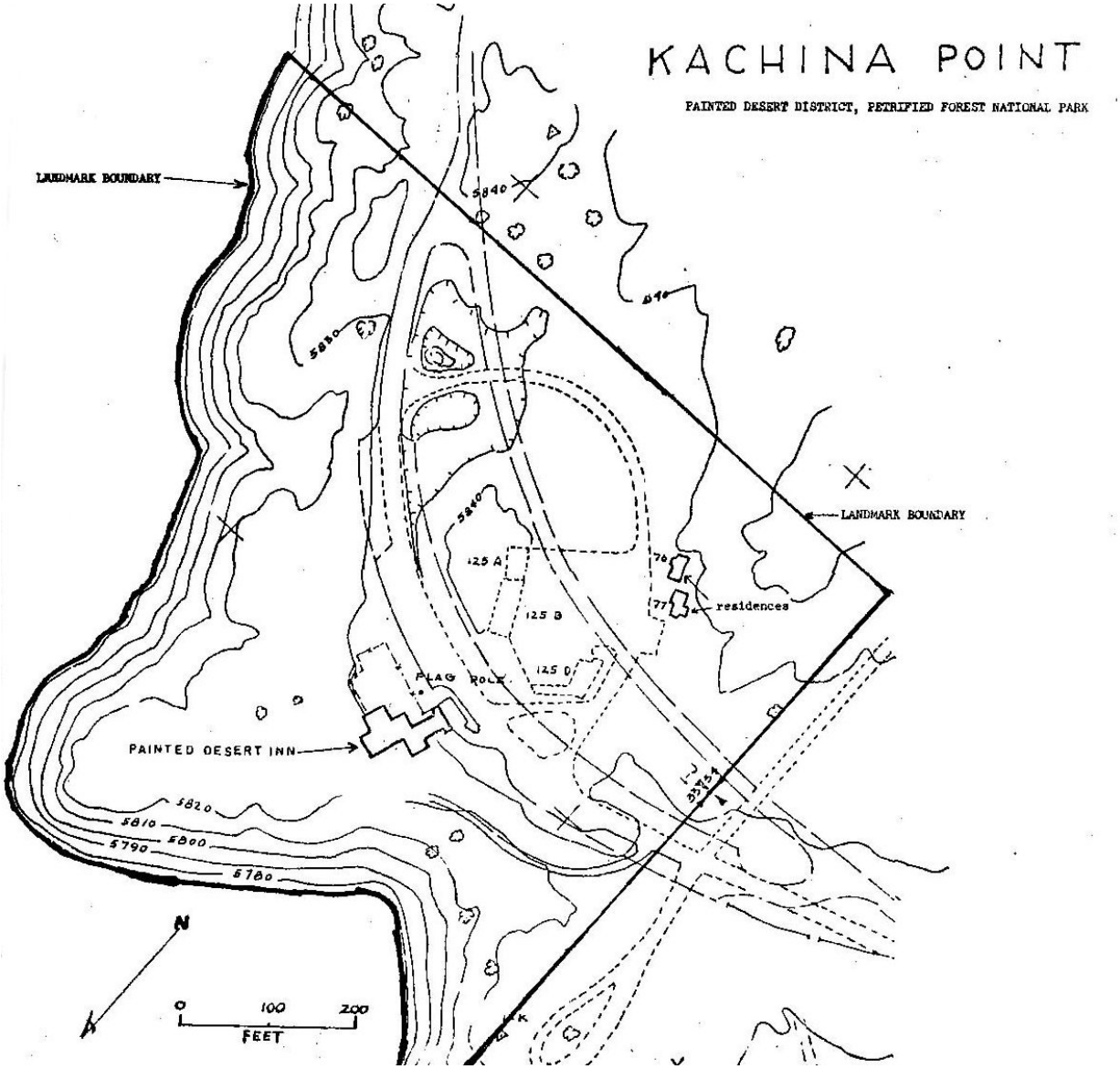

FIGURE 16. NATIONAL REGISTER OF HISTORIC PLACES BOUNDARY

Currently, the inn suffers from integral structural problems, many of which are the result of the fact that a portion of the building is constructed on expansive soil and swells with a higher moisture content that causes the building to heave and settle. Interior roof drains and poor surface drainage affect the integrity of the building. Many interior and exterior features of the cabins require repair or restoration (see discussion of Alternative B: Preferred Alternative for more detail concerning building condition). The actions proposed under this analysis would be carried out in such a manner that preserves the historic character of the buildings and would not compromise historic designations

CULTURAL LANDSCAPES

According to Director's Order – 28: *Cultural Resources Management Guideline* (NPS 1991), a cultural landscape is:

> "…A reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions."

Cultural landscapes are the result of the long interaction between humans and the land, and the influence of human beliefs and actions over time on the landscape. Shaped through time by historical land-use and management practices as well as politics, property laws, technology, and economic conditions, cultural landscapes provide a living record of a region's past. Cultural landscapes are continually reconfigured and are, therefore, a good source of information for specific time periods as well as being reflective of long-term use, thus presenting a preservation challenge. The Painted Desert Inn cultural landscape is anchored by the inn, which has been defined by both the nomination on the NRHP and the designation as a National Historic Landmark.

The cultural landscape is topically and physically more broad and includes the inn, the developed area surrounding it (including trails and vegetation), the rim road, Kachina Point, and the views from the inn that include Pilot Rock, Twin Buttes, Chinde Mesa, the Hopi Mesas, and Wide Ruins.

A cultural landscape study completed in 2002 defined the period of significance as follows:

> "The Painted Desert Inn landscape is significant for its association with the national trend in tourism and recreation, as well as National Park development, beginning in 1924 until 1940, the year in which the Civilian Conservation Corps completes its construction of the Painted Desert Inn" (Sloan and Associates 2002).

The proposed action would primarily affect the buildings that are addressed under historic structures, and their immediate vicinity. The cultural landscape also includes a variety of associated features listed in table 3, many of which are in the area of potential effect.

TABLE 3. CONTRIBUTING ELEMENTS OF THE PAINTED DESERT INN CULTURAL LANDSCAPE

Natural Systems and Features	
Canyon Rim	High-desert / shortgrass prairie ecosystem
Site topography	
Spatial Organization	
Orientation to Canyon Rim	Residential area
Kachina Point Overlook	
Land Use	
Visitor services	Concessions
Interpretation	
Buildings and structures	
Painted Desert Inn	Building No. 76
Building No.77	Entry courtyard
Lunchroom Terrace	Stairs
Women's comfort station terrace	Men's comfort station terrace
Tap Room Terrace	Northwest Patio
Sleeping room terrace	Terrace walls surrounding entry courtyard, lunchroom, men's and women's comfort stations, and Tap Room terrace
Wall remnant along rim	Walled planters
Residential area, east retaining wall and steps	Residential area, north retaining wall and steps
Residential area, west retaining wall and steps	Building No.76, patio walls
Building No.77, patio walls	
Circulation	
Wilderness Trail trailhead	Kachina Point Overlook Trail
Landscape paths surrounding Inn	
Views and Vistas	
Views of the Painted Desert	Views of the Painted Desert Inn north, east, and west, building elevations
Expansive views from entry courtyard	Framed views from porches and terraces
Views from Kachina Point	
Vegetation	
Juniper trees surrounding Inn	Native shrubs surrounding Painted Desert Inn
Small-Scale Features	
Seat walls (Bancos)	Shade structure
Stone seat near Tap Room terrace	Rock ledge
Boulders / rock outcroppings	Recessed lights
Cylindrical drain wall inserts	Roof drains
Underground sewer system	Flagpole

Museum Collections

The park museum collections currently contain 127,913 cataloged items and 55,053 uncataloged items. These collections include paleontological, archeological, historic, ethnologic, and natural history specimens. The vast majority of the park's onsite museum collections (some items are stored offsite) are housed in the headquarters / visitor center building at the Painted Desert headquarters complex. Some items from the museum collections are exhibited at the Painted Desert Inn, Painted Desert Visitor Center, and Rainbow Forest Museum. None of these facilities meet National Park Service curation standards for fire safety, humidity, temperature, or security.

Items exhibited at Painted Desert Inn include historic furnishings, materials associated with the historical role of the building, and a limited number of prehistoric artifacts. None of the items are considered highly sensitive, highly valuable, irreplaceable, or unique.

Biotic Communities

This section describes the general biotic environment of the area near the Painted Desert Inn, cabins, and proposed pipeline corridor. It includes vegetation and wildlife.

Vegetation

Throughout the park, this plant community is recovering from previous disturbances associated with overgrazing. The recovering grassland vegetation includes alkali sacaton (*Sporobolus airoides*), blue grama (*Bouteloua gracilis*), galleta grass (*Hilaria* spp.), four-winged saltbush (*Atriplex* sp.), golden buckwheat (*Eriogonum flavum*), and Mormon tea (*Ephedra* spp.) (NPS 1993). Isolated, scattered, and sparse stands of one-seed juniper (*Juniperus monosperma*) also occur.

Wildlife

The *Petrified Forest Sewage Line Compliance Vertebrate Surveys, Final Report* (Nowak 2002) was completed in association with proposed sewerline placement along the road from the Painted Desert Inn to the Painted Desert headquarters complex. The survey was primarily for reptiles, amphibians, and small mammals, although incidental observations of avian species were also recorded.

Mammals. Eighteen small and three large mammal species were observed along the road corridor during the vertebrate surveys. The most abundant small mammal was the white-tailed antelope ground squirrel (*Ammospermophilus leucurus* – nine individuals). Other small mammals that were live-trapped and released included the deer mouse (*Peromyscus maniculatus*), the brush mouse (*Peromyscus boylii*), the harvest mouse (*Reithrodontomys megalotis*), and the white-throated woodrat (*Neotoma albigula*).

Black-tailed jackrabbit (*Lepus californicus*) and mule deer (O*docoileus hemionus*) were the large mammal species observed. Pronghorn (*Antilocarpa americana*) were observed near the Rainbow Forest water tank and were the most abundant large mammals observed (seven

individuals). Droppings and tracks were observed for the porcupine (*Erethizon dorsatum*) and desert cottontail (*Sylvilagus audubonii*). Previous surveys have noted the presence of pinyon mouse (*Peromyscus truei*), Ord's kangaroo rat (*Dipodomys ordii*), and bobcat (*Lynx rufous*). Coyotes (*Canis latrans*) were not documented; however, it is likely they are present. The burrows of a former (apparently extirpated) Gunnison's prairie dog (*Cynomys gunnisoni*) colony were observed south of the Painted Desert Inn during a 2001 survey (Nowak 2002).

Reptiles and Amphibians. One amphibian species and 24 individuals from five reptile species were live-trapped or observed during surveys conducted along the road corridor (Nowak 2002). The most abundant species observed was the plateau striped whiptail (C*nemidophorus velox* – 16 individuals). Other species observed included the eastern fence lizard (*Sceloporus undulates*), sagebrush lizard (*Sceloporus graciosus*), side-blotched lizard (*Uta stansburiana*), and the collared lizard (*Crotaphytus collaris*). The only amphibian observed was the southern spadefoot (*Spea multiplicata*) (Nowak 2002).

Previous studies identified three additional reptile species: the milk snake (*Lampropeltis triangulum*), the gopher snake (*Pituophis catenifer*), and the Hopi rattlesnake (*Crotalus viridis nuntius*) (Nowak 2002).

The 2002 survey did not specifically evaluate birds and no recordings of bird observations were made along the road corridor. Bird species would experience negligible adverse impacts from the Painted Desert Inn and cabins rehabilitation and construction of the sewer pipeline and are not considered further in this document.

Soils

Two geotechnical investigations have occurred to identify soils in the vicinity of the Painted Desert Inn due the cracking of walls that is associated with expansive soils. The soils have been identified as being a non-expansive sandstone/siltstone bedrock in the southeast segment, expansive clays and claystone bedrock in the central segment, sandy clay fill material in the northwest, and a hard basalt bedrock in the northeast corner.

General soil mapping has occurred in Petrified Forest National Park; however, soils along the sewer pipeline corridor have not been specifically identified. As with most of the park, soils are expected to be highly variable in both depth and type. Soil depths are expected to range from zero to several feet. Soils types are expected to range from slightly to highly erosive.

Health and Safety

Although the two cabins are currently closed, the Painted Desert Inn is open to visitors and it is estimated that approximately one-half of all visitors to Petrified Forest National Park stop at the inn. Many of the features at the Painted Desert Inn are in need of repair or rehabilitation. Some steps providing access to the building have eroded to the point of closure to public access due to safety concerns. Flagstone patios have cracked and broken sections, and drainage and heaving problems have created uneven portions that are also a hazard to public

safety. The edge of the asphalt pathways between various levels of the inn have eroded, increasing the potential for tripping and injuries.

The wastewater system is inadequate and sometimes backs up and overflows, creating a potential health and safety hazard.

Park Operations

The park maintenance staff is responsible for the operation and maintenance of all park facilities and equipment including: utilities (water, wastewater, power, and solid waste), structures and grounds, frontcountry and backcountry visitor use areas, trail systems, picnic areas, roads, park signs, vehicles, and custodial services.

The existing sewage treatment and disposal system that serves the inn and cabins does not function properly and requires frequent maintenance. The system periodically overflows causing the trail to the desert floor to flood and erode. In addition, frequent pumping of waste from the collection system is necessary and frequent cleanup of overflows is required.

The sewage lagoon at the Painted Desert headquarters complex is not operating optimally because there is not enough water and material flowing into it. As a result, the bacterial breakdown of sewage is not efficient and the lagoons must be dredged (scraped out) more often. Adding more material and water would allow better functionality.

Visitor Experience

Annual park visitation from 1991 to 2000, ranged from 605,312 to 935,185 visitors. Visitation was relatively high in the early 1990s, peaked in 1995, and has declined each year since.

Monthly visitation peaks in July, but visitor numbers are high throughout the summer months. An increase in visitation is usually noted from mid-December until mid-January as people travel during the holidays. During spring and autumn months, seniors and school groups increase.

Seeing petrified wood and viewing the Painted Desert are the two most common reasons people give for visiting the park. Eighty-five percent of visitors stop at Painted Desert overlooks. More than half also stop to enjoy the following park locations: Painted Desert Inn, Painted Desert Visitor Center, Puerco Pueblo, Newspaper Rock, Jasper Forest, Blue Mesa, Rainbow Forest Museum, Crystal Forest, Giant Logs, and Long Logs (Delost and Lee 2001).

The Painted Desert Inn is open year-round and the comfort stations are one of the few in the park that are functional during the winter. The restrooms are subject to periodic overflow problems and the system requires frequent maintenance.

The Painted Desert Inn does not meet current Americans with Disabilities Act requirements and, therefore, limits access for some populations to this historic structure and to the interpretive exhibits and store that are located inside the structure.

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section describes the environmental consequences of the no-action and the preferred alternatives. First, the methods for assessing environmental consequences are discussed. NEPA requires consideration of context, intensity, and duration of impacts, cumulative impacts, and measures to mitigate impacts. Next, is an explanation of resource impairment, which must also be assessed by alternative, according to National Park Service policy. Subsequent sections in this section are organized by impact topic, first for the no-action alternative, then for the National Park Service preferred alternative.

METHODS FOR ASSESSING IMPACTS

Overall, the National Park Service based impact analyses and conclusions on the review of existing literature and park studies, information provided by park staff, professional judgments and insights of other agencies and officials (e.g., the Arizona State Historic Preservation Office), and input from interested local American Indian tribes and the public. Definitions used to evaluate the context, intensity, duration, and cumulative nature of impacts associated with project alternatives are discussed below.

Context is the setting within which an impact is analyzed such as the affected region, society as a whole, the affected interests, and/or a locality. In this environmental assessment / assessment of effect, the intensity of impacts are evaluated within a local (i.e., project area) or regional (i.e., parkwide) context. The intensity of the contribution of effects to cumulative impacts are evaluated in a regional context.

For this analysis, *impact intensity* or severity is defined as follows:

Cultural Resources

Cultural Resources and Section 106 of the National Historic Preservation Act

In this environmental assessment / assessment of effects impacts to historic structures and cultural landscapes are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council on Environmental Quality that implement NEPA. These impact analyses are intended, however, to comply with the requirements of both NEPA and section 106 of the National Historic Preservation Act. In accordance with the Advisory Council on Historic Preservation's regulations implementing section 106 of the National Historic Preservation Act (36 CFR Part 800, *Protection of Historic Properties),* impacts to cultural resources were also identified and evaluated by (1) determining the area of potential effect; (2) identifying cultural resources present in the area of potential effect that are either listed in or eligible to be listed in the NRHP; (3) applying the criteria of adverse effect to

affected, NRHP eligible or listed cultural resources; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Under the Advisory Council's regulations a determination of either *adverse effect* or *no adverse effect* must also be made for affected NRHP listed or eligible cultural resources. An *adverse* effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the NRHP, e.g., diminishing the integrity (or the extent to which a resource retains its historic appearance) of its location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the alternatives that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5, *Assessment of Adverse Effects).* A determination of *no adverse effect* means there is an effect, but the effect would not diminish the characteristics of the cultural resource that qualify it for inclusion in the NRHP.

Council on Environmental Quality regulations and the National Park Service's *Conservation Planning, Environmental impact Analysis and Decision-making* (Director's Order – 12) also call for a discussion of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g., reducing the intensity of an impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect, as defined by section 106, is similarly reduced. Cultural resources are non-renewable resources and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resource that can never be recovered. Therefore, although actions determined to have an adverse effect under section 106 may be mitigated, the effect remains adverse.

A section 106 summary is included in the impact analysis sections. The section 106 summary is an assessment of the effect of the undertaking (implementation of the alternative) on NRHP eligible or listed cultural resources only. Based upon the criterion of effect and criteria of adverse effect found in the Advisory Council's regulations.

Historic Structures

Definitions Of Intensity Levels:

- Negligible – Impact is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for section 106 would be *no adverse effect*

- Minor (Adverse) – The alteration of a feature(s) would not diminish the overall integrity of the resource. The determination of effect for section 106 would be *no adverse effect.*

- Minor (Beneficial) – The stabilization/preservation of features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. The determination of effect for section 106 would be *no adverse effect.*

- Moderate (Adverse) – **T**he alteration of a feature(s) would diminish the overall integrity of the resource. The determination of effect for section 106 would be *adverse effect*. A memorandum of agreement is executed among the National Park Service and applicable state or tribal historic preservation officers and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the memorandum of agreement to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate.

- Moderate (Beneficial) – The rehabilitation of a structure in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties.* The determination of effect for section 106 would be *no adverse effect.*

- Major (Adverse) – The alteration of a feature(s) would diminish the overall integrity of the resource. The determination of effect for section 106 would be *adverse effect*. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the National Park Service and applicable state or tribal historic preservation officer and/or Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

- Major (Beneficial) – The restoration of a structure in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties.* The determination of effect for section 106 would be *no adverse effect.*

Cultural Landscapes

Definitions Of Intensity Levels:

- Negligible – Impact(s) is at the lowest levels of detection with neither adverse or beneficial consequences. The determination of effect for section 106 would be *no adverse effect*.

- Minor (Adverse) – The alteration of a pattern(s) or feature(s) of the landscape would not diminish the overall integrity of the landscape. The determination of effect for section 106 would be *no adverse effect*.

- Minor (Beneficial) – The preservation of landscape patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* with *Guidelines for the Treatment of Cultural Landscapes.* The determination of effect for section 106 would be *no adverse effect*.

- Moderate (Adverse) – The alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. The determination of effect for section 106 would be *adverse effect*. A memorandum of agreement is executed among the National Park Service and applicable state or tribal historic preservation officers and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the memorandum of agreement to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate.

- Moderate (Beneficial) – The rehabilitation of a landscape or its patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* with *Guidelines for the Treatment of Cultural Landscapes.* The determination of effect for section 106 would be no *adverse effect.*

- Major (Adverse) – The alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. The determination of effect for section 106 would be *adverse effect*. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the National Park Service and applicable state or tribal historic preservation officers and/or Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

- Major (Beneficial) – The restoration of a landscape or its patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* with *Guidelines for the Treatment of Cultural Landscapes.* The determination of effect for section 106 would be *no adverse effect*.

Museum Collections

Museum collections (prehistoric and historic objects, artifacts, works of art, archival documents, and natural history specimens) are generally ineligible for listing in the NRHP. As such, section 106 determinations of effect are not provided.

Definitions Of Intensity Levels:

- Negligible – Impact is at the lowest levels of detection; barely measurable with no perceptible consequences, either adverse or beneficial, to museum collections.

- Minor (Adverse) – An action that would affect the integrity of few items in the museum collection, but would not degrade the usefulness of the collection for future research and interpretation.

- Minor (Beneficial) – An action that would stabilize the current condition of the collection or its constituent components to minimize degradation.

- Moderate (Adverse) – An action that would affect the integrity of many items in the museum collection and diminish the usefulness of the collection for future research and interpretation.

- Moderate (Beneficial) – An action that would improve the condition of the collection or protect its constituent parts from the threat of degradation.

- Major (Adverse) – An action that would affect the integrity of most items in the museum collection and destroy the usefulness of the collection for future research and interpretation.

- Major (Beneficial) – An action that would secure the condition of the collection as a whole or its constituent components from the threat of further degradation.

Biotic Communities

- Negligible – An action that could affect biotic communities or habitat, but the change would be so small that it would not be of any measurable or perceptible consequence.
- Minor – An action that could affect biotic communities or habitat, but the change would be slight and localized with few measurable consequences.
- Moderate – An action that would result in readily apparent changes to biotic communities or habitat with measurable consequences.
- Major – A severely adverse or exceptionally beneficial effect to biotic communities or habitat would result.

Soils

- Negligible – Soils would not be affected or the effects to soils would be below or at the lower levels of detection. Any effects to soils would be slight and no long-term effects to soils would occur.
- Minor – The effects to soils would be detectable. Effects to the soils area would be small. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely to be successful.
- Moderate – The effect to soils would be readily apparent, likely long term, and result in a change to the soil character over a relatively wide area. Mitigation measures would be necessary to offset adverse effects and likely be successful.
- Major – The effect to soil would be readily apparent, long term, and would substantially change the character of the soils over a large area in and out of the park. Mitigation measures to offset adverse effects would be needed, extensive, and their success could not be guaranteed.

Health and Safety

- Negligible – Health and safety would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on health or safety.
- Minor –The effect would be detectable and would likely be short term, but would not have an appreciable effect on health and safety. If mitigation were needed, it would be relatively simple and would likely be successful.

- Moderate – The effects would be readily apparent and long term, and would result in substantial noticeable effects to health and safety on a local scale. Mitigation measures would probably be necessary and would likely be successful.

- Major –The effects would be readily apparent and long term, and would result in substantial noticeable effects to health and safety on a regional scale. Extensive mitigation measures would be needed, and their success would not be guaranteed.

Park Operations

- Negligible – Park operations would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on park operations.

- Minor – The effect would be detectable and likely short term, but would be of a magnitude that would not have an appreciable effect on park operations.

- Moderate –The effects would be readily apparent, likely long term, and would result in a substantial change in park operations in a manner noticeable to staff and the public. Mitigation measures would be necessary to offset adverse effects and would likely be successful.

- Major – The effects would be readily apparent, long term, would result in a substantial change in park operations in a manner noticeable to staff and the public and be markedly different from existing operations. Mitigation measures to offset adverse effects would be needed, would be extensive, and their success would not be guaranteed.

Visitor Experience

- Negligible – Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. Any effects would be short term. The visitor would not likely be aware of the effects associated with the alternative.

- Minor – Changes in visitor use and/or experience would be detectable, although the changes would be slight and likely short term. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.

- Moderate – Changes in visitor use and/or experience would be readily apparent and likely long term. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.

- Major – Changes in visitor use and/or experience would be readily apparent, severely adverse or exceptionally beneficial, and have important long-term consequences. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.

The *duration* of the impacts in this analysis is defined as follows:

- *Short term* – impacts occur only during construction or last less than one year
- *Long term* – impacts last longer than one year

Whether an impact is direct or indirect is considered as follows:

- *direct* – an effect that is caused by an action and occurs at the same time and place
- *indirect* – an effect that is caused by an action but is later in time or farther removed in distance, but still reasonably foreseeable

Cumulative Impacts. The Council on Environmental Quality regulations, which implement NEPA, require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the no-action and preferred alternatives.

Cumulative impacts were determined by combining the impacts of the preferred alternative (replacing or adding waterline segments, valves, hydrants, and sprinklers) with other past, present, or reasonably foreseeable future actions. It was, therefore, necessary to identify past, ongoing, or reasonably foreseeable future actions in the area of the park. Petrified Forest National Park is currently revising its 1992 *General Management Plan*. Based on progress on the general management plan revision, the following actions are considered reasonably foreseeable future actions:

- re-roofing of Painted Desert Inn (ongoing in 2003)
- conversion from a water-based system to vault toilets for the Agate Bridge/Jasper Forest, Puerco Pueblo, and Chinde Point areas
- addressing failing septic/leachfield systems at Chinde picnic area
- possible conversion of 1930s structures at Agate Bridge and Puerco Pueblo from restroom use to interpretive/shade structures (more in keeping with original use)
- construction of new trails and wayside exhibits
- replacement of sewer system lines at Painted Desert headquarters complex and Rainbow Forest
- removal of the Puerco sewage lagoons
- installation of automatic sprinklers and fire/smoke alarms in Painted Desert headquarters complex buildings
- rehabilitation of Buildings 202 and 51A

IMPAIRMENT OF PARK RESOURCES AND VALUES

In addition to determining the environmental consequences of the proposed action and alternatives, the 2001 *NPS Management Policies* (NPS 2001A) and Director's Order – 12 require analysis of potential effects to determine if actions would impair park resources. The fundamental purpose of the national park system, established by the Organic Act and

reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must seek ways to avoid, or minimize to the greatest degree practicable, adversely impacting park resources and values. Congress has given National Park Service managers discretion, however, to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, so long as the impact does not constitute impairment of the affected resources and values.

The prohibited impairment is an impact that would, in the professional judgment of the responsible National Park Service manager, harm the integrity of park resources or values, including opportunities that would otherwise be present for the enjoyment of those resources or values. An impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is as follows:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park
- identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents

A determination on impairment is made in the "Conclusion" section of most impact topics of this document. Impairment statements are not required for health and safety, visitor experience, or park operations topics.

ENVIRONMENTAL CONSEQUENCES-—ALTERNATIVE A: NO ACTION

Historic Structures

Under the no-action alternative, the Painted Desert Inn (a National Historic Landmark) and cabins 76 and 77 (NRHP properties) would continue to be managed as they are currently. Limited maintenance and repairs would be performed on the buildings, but overall the buildings would continue in a state of disrepair and would cause a long-term, moderate, adverse impact to the historic structures.

Cumulative Impacts. Many of the cumulative actions would have no effect on the Painted Desert Inn or the cabins. However, the project to place a new roof on the Painted Desert Inn would have a beneficial effect on preserving the structure for as long as the new roof is functional. The roofing project does not include cabins 76 and 77. Overall, cumulative actions in association with the no-action alternative would result in long-term, minor, beneficial impacts to the historic structures.

Conclusion. The no-action alternative would result in a long-term, moderate, adverse impact to historic structures. The cumulative actions, including the no-action alternative, would result in a long-term, minor, beneficial impact to historic structures.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents, there would be no impairment of park resources or values.

Cultural Landscape

Under the no-action alternative, limited maintenance and repairs would continue to be performed on the buildings and immediate landscape to address safety and operational concerns. To date, such activities have affected the tone of the landscape, but not its emotive power or the historical integrity of the landscape. Therefore, current impacts to the cultural landscape are long term, minor, and adverse.

Cumulative Impacts. Many of the cumulative actions would have no effect on the cultural landscape of the Painted Desert Inn. However, the project to place a new roof on the Painted Desert Inn would have a beneficial effect on preserving the structure for as long as the new roof is functional. The roofing project does not include cabins 76 and 77. Overall, cumulative actions in association with the no-action alternative would result in negligible impacts to the cultural landscape.

Conclusion. The no-action alternative would result in a long-term, minor, adverse impact to the Painted Desert Inn cultural landscape. The cumulative actions, including the no-action alternative would result in a negligible impact to the cultural landscape defined by the NRHP nomination boundary.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents, there would be no impairment of park resources or values.

Museum Collections

Without adequate fire suppression, the museum collections exhibited at the Painted Desert Inn are susceptible to damage or destruction in the event of a fire. The collection exhibited at Painted Desert Inn is a small portion of the total collection housed at the park or other research facilities and does not contain highly sensitive, highly valuable, irreplaceable, or unique artifacts. Continued drainage problems and associated leakage could also damage the museum collections at the Painted Desert Inn. The resulting potential impact would be long term, local, and minor under the no-action alternative.

Cumulative Impacts. The only cumulative action that would affect museum collections would be the replacement of the roof on the Painted Desert Inn. The roof replacement would have an overall minor beneficial effect in keeping the roof from leaking. The beneficial effects from roof replacement would be outweighed by the need for adequate fire and theft protection and

the need for additional repair work and the overall cumulative impacts would be local, long term, adverse, and moderate.

Conclusion. Current potential impacts to the museum collections under the no-action alternative are local, adverse, long term, and moderate. Cumulative impacts would be adverse, long term, and moderate.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents, there would be no impairment of park resources or values.

Biotic Communities

There would be no new impacts to biotic communities (vegetation and wildlife) should the no-action alternative be implemented. There would be no disturbances to vegetative resources or wildlife as a result of the continued operation of the Painted Desert Inn.

Cumulative Impacts. Because the no-action alternative would not impact biotic communities, there would be no cumulative impacts.

Conclusion. There would be no new impacts resulting from the no-action alternative. Because the no-action alternative would not impact biotic communities, there would be no cumulative impacts.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents, there would be no impairment of park resources or values.

Soils

There would be no new impacts to soils should the no-action alternative be implemented.

Cumulative Impacts. Because the no-action alternative would not impact soils, there would be no cumulative impacts.

Conclusion. There would be no new impacts resulting from the no-action alternative. Because the no-action alternative would not impact soils, there would be no cumulative impacts.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

(3) identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents, there would be no impairment of park resources or values.

Health and Safety

The no-action alternative could result in potential health and safety concerns as a result of the frequent sewage overflows at the inn restrooms. There is an increased potential for accidents on the paths, courtyards, and walkways surrounding the inn as a result of the uneven stones and pavements from poor drainage and settling. Several sets of stairs are closed at the inn because they represent a safety hazard; however, some visitors may choose to still use these stairs. In the event of a fire, the out-of-date alarm system and lack of fire suppression could create a safety hazard to those using the building. In the long term, the potential instability of the buildings themselves could represent a safety hazard to employees and visitors.

There would be local, short- and long-term, minor, adverse impacts to health and safety as a result of the no-action alternative.

Cumulative Impacts. Past and reasonably foreseeable future actions improving health and safety at the park include installation of automatic sprinklers and alarm systems at the Painted Desert headquarters building and improvements to the restroom facilities, sewage treatment, and sewage disposal systems parkwide. The cumulative effect of the no-action alternative, combined with other reasonably foreseeable projects, would be long term, minor, and beneficial.

Conclusion. The no-action alternative would have local, short- and long-term, minor, adverse impacts on human health and safety from contact with raw sewage, potential tripping or falling risks, and potential fire danger. Cumulative impacts from improved health and safety conditions, including parkwide improvements to restrooms, sewage treatment and disposal systems, and installation of fire alarm and suppression systems at the headquarters building would result in long-term, minor, beneficial impacts.

Park Operations

Under the no-action alternative, park maintenance workers would be required to provide continuing frequent maintenance to the sewage system at the Painted Desert Inn, including cleanup of overflows and pumping of the system to attempt to prevent overflows. Maintenance would also be required to the inn building itself, but such maintenance would be limited to the minimum amount of work necessary to preserve the building. The no-action alternative would have no impact on park operations within the Painted Desert Inn. The store at the Painted Desert Inn would remain open and continue to sell items in much the same manner as current operations. Fire alert systems do not meet current requirements and could necessitate both frequent maintenance and frequent responses to false alarms. No fire suppression systems are installed in the buildings, resulting in the need for significant manpower in the event of a fire at the inn. The cabins represent buildings that could be used for housing, but are currently in unusable condition. The no-action alternative would result in long-term, minor, adverse impacts to park operations.

Cumulative Impacts. Cumulative actions would result in a short-term temporary increase in the demand for the oversight and the possible need for emergency personnel as a result of the potential future work on the restroom facilities, sewage systems, and sewage pipeline replacement at various locations throughout the park. The result would be a short-term, parkwide, minor, adverse impact to park operations. However, in the long term, improvements to these facilities would lead to a minor beneficial impact to park operations through less need for maintenance and repairs. These activities, in association with the no-action alternative, would result in a parkwide, short-term, minor, adverse impact and overall, long-term, minor, beneficial impact. However, cumulative past, present, and reasonably future projects, in association with the no-action alternative, would have no impact on park operations within the Painted Desert Inn

Conclusion. The no-action alternative would result in long-term, minor, adverse impacts to park operations. The cumulative projects, in association with the no-action alternative, would result in short-term, minor, adverse impacts to park operations and long-term, minor, beneficial impacts to park operations. The no-action alternative, by itself or in association with cumulative actions, would have no impact on park operations within the Painted Desert Inn.

Visitor Experience

The no-action alternative would result in no changes to the current visitor experience at the Painted Desert Inn. The building would continue to be in a state of disrepair with obvious cracking, peeling, and general structural degradation. Restrooms would continue to periodically backup and overflow. Such backups and overflows would result in temporary closure of the facilities and/or visitor discomfort. The inn would not be accessible to certain populations of visitors. The no-action alternative would result in a local, long-term, minor, adverse impact to the overall visitor experience.

Cumulative Impacts. Cumulative actions would result in temporary restroom closures and traffic delays as a result of the potential future work on the restroom facilities and sewage systems at various locations throughout the park. These activities could have an overall short-term, minor, adverse impact on visitor experience throughout the park with a long-term, minor, beneficial impact. Construction of new wayside exhibits and trails would have an overall long-term, negligible, beneficial impact on visitor experience. These activities, in association with the no-action alternative, would result in a parkwide, short-term, minor, adverse impact and overall long-term, minor, beneficial impact.

Conclusion. The no-action alternative would result in local, long-term, minor, adverse impacts to the overall visitor experience. Cumulative actions, including the no-action alternative, would result in a parkwide, short-term, minor, adverse impact and a long-term, minor, beneficial impact.

ENVIRONMENTAL CONSEQUENCES—ALTERNATIVE B: PREFERRED ALTERNATIVE

Historic Structures

Under the preferred alternative, the Painted Desert Inn and associated cabins 76 and 77 would undergo restoration. The buildings would be restored, drainage problems would be corrected, cracking repaired, stucco replaced, walls would be painted, and murals restored. The work would be conducted within the guidelines of the Secretary of Interior's *Standards for the Treatment of Historic Properties* and would ensure that the buildings retain, as much as possible, distinctive materials, features, spaces, and spatial relationships. The historic character of the buildings would be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property would be avoided. Distinctive materials, features, finishes, and construction techniques that characterize the inn and cabins would be preserved. Deteriorated historic features would be repaired, and when replaced, the new feature would match the old in design, color, texture, and, where possible, materials. The new work would be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the buildings. The new accessible entrance would not affect the principal facades of the inn. Therefore, the work would allow the buildings to be maintained as historic structures and would provide long-term, moderate, beneficial impacts for the National Historic Landmark and NRHP structures.

Cumulative Impacts. Many of the cumulative actions would have no effect on the cultural landscape of the Painted Desert Inn. However, the project to place a new roof on the Painted Desert Inn would have a beneficial effect on preserving the structure for as long as the new roof is functional. The roofing project does not include cabins 76 and 77. Overall, cumulative actions in association with the preferred alternative would result in long-term, minor, beneficial impacts to the cultural landscape.

Section 106 Summary. Under 36 CFR 800, *Protection of Historic and Cultural Properties*, "an undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association."

Under the preferred alternative, the historic structures would be renovated. Such action is consistent with protection of historic and cultural properties under 36 CFR 800. After applying the Advisory Council on Historic Preservation's criteria of adverse effect (36 CFR 800.5), the National Park Service determined that the activities proposed in alternative B would have *no adverse effect* to the National Historic Landmark and NRHP structures.

Conclusion. The preferred alternative would result in a long-term, moderate, beneficial impact to historic structures. The cumulative actions, including the preferred alternative, would result in a long-term, minor, beneficial impact to the cultural landscape defined by the NRHP nomination boundary. The building renovation would be consistent with protection of historic and cultural properties under 36 CFR 800.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents, there would be no impairment of park resources or values.

Cultural Landscape

Under the preferred alternative, the Painted Desert Inn and associated cabins 76 and 77 would undergo restoration, and outside walkways and courtyards would be regraded and repaired. Contributing land uses and the historic visual entry/approach/arrival sequence (circulation) at the inn would be altered. However, the work would be conducted within the guidelines of the Secretary of Interior's *Secretary of the Interior's Standards for the Treatment of Historic Properties* with *Guidelines for the Treatment of Cultural Landscapes* and would ensure that all landscape features retain, as much as possible, distinctive materials, features, spaces, and spatial relationships. When effects to the cultural landscape's land uses and circulation are viewed in combination with the rest of the building treatments designed to preserve the integrity of the inn and cabins, the historic character and integrity of the cultural landscape would be retained and preserved. Therefore, the work would provide long-term, minor, beneficial impacts for cultural landscape.

Cumulative Impacts. Many of the cumulative actions would have no effect on the cultural landscape of the Painted Desert Inn. However, the project to place a new roof on the Painted Desert Inn would have a beneficial effect on preserving the structure for as long as the new roof is functional. The roofing project does not include cabins 76 and 77. Overall, cumulative actions in association with the preferred alternative would result in long-term, minor, beneficial impacts to the cultural landscape.

Section 106 Summary. Under 36 CFR 800, *Protection of Historic and Cultural Properties*, "an undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association."

Under the preferred alternative, contributing elements of the cultural landscape would be renovated. Moreover, the work would be conducted within the guidelines of the Secretary of Interior's *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* and is consistent with protection of cultural properties under 36 CFR 800. After applying the Advisory Council on Historic Preservation's criteria of adverse effect (36 CFR 800.5), the National Park Service determined that the activities proposed in alternative B would have *no adverse effect* to the cultural landscape.

Conclusion. The preferred alternative would result in a long-term, minor, beneficial impact to the Painted Desert Inn cultural landscape. The cumulative actions, including the preferred alternative, would result in a long-term, minor, adverse impact to the cultural landscape defined by the NRHP nomination boundary. The building renovation would be consistent with protection of historic and cultural properties under 36 CFR 800.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents, there would be no impairment of park resources or values.

Museum Collections

The preferred alternative includes installation of fire suppression sprinklers and fire and intruder alarm systems in the Painted Desert Inn. This would provide better fire, theft, and vandalism protection for items exhibited at the inn, and the exhibit area would come closer to meeting National Park Service standards for curation. The exhibits would also be protected from leakage as a result of the repair of the gutter system. The impact would be local, long term, minor, and beneficial.

Cumulative Impacts. Many of the past, present, or reasonably future cumulative actions would have no effect on the museum collections at the Painted Desert Inn. However, the project to place a new roof on the Painted Desert Inn would have a beneficial effect on preserving the museum collections for as long as the new roof is functional. The roofing project does not include cabins 76 and 77. Installation of a fire detection and suppression system in the Painted Desert headquarters complex would have a beneficial effect on museum collections in that building. Overall, cumulative actions in association with the preferred alternative would result in long-term, minor, beneficial impacts to museum collections.

Conclusion. Current potential impacts to the museum collections, under the preferred alternative, are local, beneficial, long term, and moderate. The cumulative actions would result in long-term, minor, beneficial impacts to museum collections.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents, there would be no impairment of park resources or values.

Biotic Communities

There could be short-term, local, minor, adverse impacts to biotic communities (vegetation and wildlife) as a result of the preferred alternative. The impacts would be primarily as a result of pipeline corridor excavation that could result in very short-term displacement of some vegetation and wildlife species. Reclamation would occur upon completion of the construction.

The wildlife survey completed in 2002, concluded that "It is likely that vertebrates with small home ranges such as Eastern fence lizards, deer mice, and snakes using burrows would be disturbed and/or crushed by the construction activities at all sites; however, any accidental

deaths should not affect overall populations in the park. Large mammals traveling through the sites, such as coyotes and bobcats, may alter their movement patterns to avoid construction activities" (Nowak 2002).

The 2002 survey also made special mention of protection of milk snakes that could occur in the vicinity of the Painted Desert Inn. Mitigation would be implemented to train construction workers in identification of milk snakes to allow them to avoid disturbance to this species. Impacts to biotic communities would be local, minor, and adverse.

Cumulative Impacts. A variety of past, present, and reasonably foreseeable actions have affected and would continue to affect biotic communities at Petrified Forest National Park. Livestock grazing, which occurred in the park until 1962, resulted in fragmented shortgrass prairie remnants. Human activities such as construction and maintenance of buildings, roads, and visitor facilities have resulted in localized disturbance of biotic communities. Examples at Petrified Forest National Park include the potential future restroom, sewerline, and wastewater treatment improvements. The preferred alternative, in association with the cumulative projects, would have short-term, minor, adverse, cumulative impacts to vegetation and wildlife.

Conclusion. There would be short-term, local, minor, adverse impacts to vegetation and wildlife resulting from the preferred alternative. The cumulative effect of the preferred alternative and other past, present, and reasonably foreseeable future actions would be short-term, minor, adverse impacts to vegetation and wildlife.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents, there would be no impairment of park resources or values.

Soils

Soils would be disturbed along the pipeline corridor as a result of the preferred alternative. Approximately 9,600 feet of pipeline would be located along or within existing roadways. Five hundred feet would be located in a currently undisturbed area between the Painted Desert Inn parking lot and the main park road. Another 180 feet would replace existing pipeline from the Painted Desert Inn to the treatment tanks. In order to place the pipe, a trench would be dug and the material side cast for replacement. The trench depth would vary from zero to 4-feet deep, depending on the presence of bedrock. The pipe would be placed in the trench after the proper pipe bedding material is placed. The trench would then be backfilled with the side cast materials. An estimated 3.0 acres of soils would be disturbed, assuming a maximum width of the disturbance corridor for pipeline placement of 10 feet.

Soils would be restored for an area of less than 0.5 acre as a result of removal of the Painted Desert Inn sewage lagoons.

Overall, there would be short-term, local, minor, adverse impacts to soils as a result of the preferred alternative. Soils replacement and reclamation would occur upon completion of the construction, so there would be no long-term effects.

Cumulative Impacts. A variety of past, present, and reasonably foreseeable actions have affected and would continue to affect soils at Petrified Forest National Park. Human activities such as construction and maintenance of buildings, roads, and visitor facilities have resulted in localized disturbance and restoration of soils. Examples at Petrified Forest National Park include the potential future restroom, sewerline, and wastewater treatment improvements and removal of sewage lagoons at Puerco. The past, present, and reasonably foreseeable future activities would have a short- and long-term, minor, adverse impact to soils. The preferred alternative would provide minor, short-term contributions to cumulative effects and the overall cumulative impact would be short term, minor, and adverse to soils.

Conclusion. There would be short-term, local, minor, adverse impacts to soils as a result of the preferred alternative. Soils replacement and reclamation would occur upon completion of the construction, so there would be no long-term effects. The preferred alternative would provide minor short-term contributions to cumulative effects and the overall cumulative impact would be short term, minor, and adverse to soils.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's *General Management Plan* or other relevant National Park Service planning documents, there would be no impairment of park resources or values.

Health and Safety

The preferred alternative would eliminate the public and employee health and safety concerns for the Painted Desert Inn area by completing improvements to the sewage treatment and disposal system; renovating the building and grounds to promote drainage; and rehabilitating cracking and broken paths, walkways, courtyards, and stairs; improving fire alarm systems; and providing fire suppression systems. There would be long-term, minor, beneficial impacts to health and safety as a result of the preferred alternative.

Construction activities could create potential short-term adverse impacts to visitors, employees, and construction workers. Such potential adverse impacts would be mitigated through closure of the area to the public during construction and through implementation of appropriate safe work zone measures such as signage and safety training. The short-term construction activities would, therefore, be considered negligible and adverse if the appropriate mitigation was implemented.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions improving health and safety at the park include installation of automatic sprinklers and alarm systems at the Painted Desert headquarters complex and improvements to the restroom facilities, sewage treatment, and sewage disposal systems parkwide. The cumulative effect of the preferred

alternative, combined with other reasonably foreseeable projects, would be short term, negligible, adverse, and long term, minor, and beneficial.

Conclusion. The preferred alternative would have long-term, minor, beneficial impacts on human health and safety. Short-term construction risks would be negligible and adverse if the appropriate mitigation was implemented. Cumulative impacts from improved health and safety conditions would result in short-term, negligible, adverse, and long-term, minor, beneficial impacts.

Park Operations

Under the preferred alternative, the facilities and systems at the Painted Desert Inn would be replaced and would no longer require the frequent maintenance and repairs now required. There would be short-term, minor, adverse impacts to park operations during the renovations and installation of the new sewage treatment/disposal system and pipeline. These impacts would result primarily from construction oversight activities. The long-term project impacts would be negligible and beneficial to park operations, as the need for ongoing maintenance would be reduced.

Park operations within the Painted Desert Inn would cease during renovations because the inn would be closed to visitors. The inn accounts for approximately 11% of the total sales by the Petrified Forest Museum Association at the three stores in the park. The Petrified Forest Museum Association indicated that they would be expanding their sales line to attempt to boost revenues during the renovations, and that the organization would try to maintain employment of the one full-time employee currently stationed at the inn during the closure of the store. The temporary closure of the store at the inn would result in local, short-term, minor, adverse impacts. No long-term impacts to park operations within the Painted Desert Inn are expected because once the inn is restored, the store operations in the building would continue.

Cumulative Impacts. Cumulative actions would result in a short-term temporary increase in the demand for the oversight and the potential need for emergency personnel as a result of the potential future work on the restroom facilities, sewage systems, and sewage pipeline replacement at various locations throughout the park, in addition to the renovations at the inn and cabins and the sewerline work at the inn. The result would be a short-term, parkwide, minor, adverse impact to park operations. However, in the long term, improvements to these facilities would lead to a minor beneficial impact to park operations through less need for maintenance and repairs. Past, present, and reasonably foreseeable future actions would not impact park operations within the Painted Desert Inn. The cumulative actions, in association with the preferred alternative, would have a local, short-term, minor, adverse impact on park operations within the Painted Desert Inn.

Conclusion. The preferred alternative would result in short-term, minor, adverse, and long-term, negligible, beneficial impacts to park operations. The cumulative projects, in association with the preferred alternative, would result in short-term, minor, adverse impacts to park operations and long-term, minor, beneficial impacts to park operations. The preferred alternative would have a local, short-term, minor, adverse impact to park operations within the

Painted Desert Inn. Cumulative actions, in association with the preferred alternative, would have a local, short-term, minor, adverse impact on park operations within the Painted Desert Inn.

Visitor Experience

The preferred alternative would result in beneficial impacts to the visitor experience at the Painted Desert Inn. The building would become accessible to all populations of visitors. The overall look of the inn would be improved with the renovations and the interpretive exhibits that would be installed. Restroom facilities would be improved with the elimination of potential overflows and periodic closures. In the short term, the inn would be closed to all visitors resulting in a short-term, minor, adverse impact to overall visitor experience. The preferred alternative would result in a local, long-term, minor, beneficial impact to the overall visitor experience.

Cumulative Impacts. Cumulative actions would result in temporary restroom closures and traffic delays as a result of the potential future work on the restroom facilities and sewage systems at various locations throughout the park. These activities could have an overall short-term, minor, adverse impact on visitor experience throughout the park with a long-term, minor, beneficial impact. Construction of new wayside exhibits and trails would have an overall long-term, negligible, beneficial impact on visitor experience. These activities, in association with the preferred alternative, would result in a parkwide, short-term, minor, adverse impact and overall, long-term, minor beneficial impact.

Conclusion. The preferred alternative would result in local, short-term, minor, adverse impacts to the overall visitor experience and a long-term, minor, beneficial impact. Cumulative actions, including the preferred alternative, would result in a parkwide, short-term, minor, adverse, impact and a long-term, minor, beneficial impact.

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CONSULTATION AND COORDINATION

Agencies and organizations contacted for information; or that assisted in identifying important issues, developing alternatives, or that will be given an opportunity to review and comment on this environmental assessment / assessment of effect include the following:

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Office of Navajo and Hopi Indian Relocation
U.S. Army Corps of Engineers
U.S. Department of Agriculture – Natural Resources Conservation Service
U.S. Fish and Wildlife Service
U.S. Geological Survey

TRIBES

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Hopi Tribe
Indian Wells Chapter of the Navajo
Klagetoh Chapter of the Navajo
Lower Greasewood Chapter of the Navajo
Nahatadzill Chapter of the Navajo
Navajo Nation
Pueblo of Zuni
Wide Ruins Community Chapter of the Navajo
White Mountain Apache Tribe

STATE AND LOCAL AGENCIES

Apache County Board of Supervisors
Arizona Department of Environmental Quality
Arizona Game and Fish Department
Arizona State Parks – State Historic Preservation Office
City of Holbrook
Navajo County Board of Supervisors

OTHER ORGANIZATIONS

AMFAC Parks and Resorts
Grand Canyon Trust
Little Colorado River Plateau R.C.&D
National Parks and Conservation Association
White Mountain Audubon Society

PREPARERS

This environmental assessment / assessment of effect was prepared by engineering-environmental Management, Inc. under the direction of Ms. Karen Beppler-Dorn, Chief of Resources Management, Petrified Forest National Park. Ms. Beppler-Dorn and Petrified Forest National Park staff (especially Karen Beppler-Dorn, Pat Thompson, Bill Grether, and Chad Thomas), and Denver Service Center Staff (Bill Shelley, Richard Marshall, and Phil Ayers) provided invaluable assistance in the development and technical review of this environmental assessment. The individuals who prepared this document are listed below:

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APPENDIX A

NATIONAL PARK SERVICE PRESS RELEASE

National Park Service
U.S. Department of the Interior

Petrified Forest National Park

P.O. Box 2217
1 Park Road
Petrified Forest, AZ 86028
(928)524-6228 phone
(928)524-3567 fax

Petrified Forest N.P. News Release

Release date: Immediate
Contact(s): Karen Beppler-Dorn
Phone number: 928-524-6228 x263
Date: July 10, 2003
Release code: **NPS**

PUBLIC COMMENTS ARE SOUGHT ON PROPOSED REHABILITATION PROJECT FOR PAINTED DESERT

Petrified Forest, AZ – Petrified Forest National Park officials today announced they are proposing to rehabilitate Painted Desert Inn, a National Historic Landmark. This project will repair and correct many of the drainage and structural problems that currently threaten the building's structural and historical integrity, and make necessary changes to exterior entryways in order to meet American Disabilities Act (ADA) standards.

An early step in the National Park Service planning process is to involve the public. Park managers, therefore, are soliciting comments on the concerns and issues to be addressed in an Environmental Assessment (EA) that is being prepared for this project. The EA should be available for public review in the summer of 2003.

This rehabilitation project is necessary to correct roof leaks and drainage problems, in addition to repairing expansion cracks and water damage. The existing conditions threaten many of the Painted Desert Inn's most historically significant features, including several murals by Fred Kabotie, a Hopi artist. During substantial rainstorms, water enters the building through the roof and walls, threatening merchandise, historic furnishings, and architectural elements.

Plans also include minor alterations to the surrounding landscape and entryways to make the building accessible for all visitors, including those who are physically challenged. The building is presently inaccessible to these special populations, because visitors must be able to navigate steps in order to enter the building. A temporary ramp is currently in place, but it does not meet these needs satisfactorily.

Painted Desert Inn was initially constructed by Herbert Lore in 1924 as the "Stone Tree House." Between 1937 and 1939 the building was enlarged to its present size by the Civilian Conservation Corps (CCC) under the direction of Lorimer Skidmore. It is considered architecturally significant for its design and artisanship and for its regional association with the CCC. Painted Desert Inn was designated a National Historic Landmark in 1987.

To assist Petrified Forest National Park with the Painted Desert Inn Rehabilitation Project, the public is invited to comment on the project proposal and any related issues or concerns they may have.

For more information call (928) 524-6228 weekdays, 8:00 a.m. to 4:00 p.m. Mountain Standard Time; or write to the Superintendent, Petrified Forest National Park, Attention: Painted Desert Inn Rehabilitation,P.O. Box 2217, Petrified Forest, AZ 86028; or e-mail the park Superintendent at PEFO_Superintendent@nps.gov.

NPS

EXPERIENCE YOUR AMERICA

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

APPENDIX B

U.S. FISH AND WILDLIFE SERVICE SPECIES LIST

United States Department of the Interior
U.S. Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer to:

AESO/SE
02-21-03-I-0092

January 14, 2003

JAN 17 2003

Ms. Jayne Aaron, Project Manager
Engineering Environmental Management Inc.
1510 West Canal Court, Suite 2000
Littleton, Colorado 80120

RE: Rehabilitation of the Painted Desert Inn and Associated Cabins at the Petrified Forest National Park

Dear Ms. Aaron:

Thank you for your recent request for information on threatened or endangered species, or those that are proposed to be listed as such under the Endangered Species Act of 1973, as amended (Act), which may occur in your project area. The Arizona Ecological Service Field Office has posted lists of the endangered, threatened, proposed, and candidate species occurring in each of Arizona's 15 counties on the Internet. Please refer to the following web page for species information in the county where your project occurs: **http://arizonaes.fws.gov**

If you do not have access to the Internet or have difficulty obtaining a list, please contact our office and we will mail or fax you a list as soon as possible.

After opening the web site, click the Threatened and Endangered button on the left hand side of the page. Then scroll to the bottom of the page where there is a map of Arizona. You can either click on your county of choice on the map or from the list. The arrows on the left will guide you through information on species that are listed, proposed, candidates, or have conservation agreements. Here you will find information on the species' status, a physical description, all counties where the species occurs, habitat, elevation, and some general comments. Additional information can be obtained by going back to the main page. On the left side of the screen, click on Document Library, then click on Documents by Species, then click on the name of the species of interest to obtain General Species Information, or other documents that may be available. Click on the cactus icon to view the desired document.

Please note that your project area may not necessarily include all or any of these species. The information provided includes general descriptions, habitat requirements, and other information for each species on the list. Under the General Species Information, citations for the Federal Register (FR) are included for each listed and proposed species. The FR is available at most

public libraries. This information should assist you in determining which species may or may not occur within your project area. Site-specific surveys could also be helpful and may be needed to verify the presence or absence of a species or its habitat as required for the evaluation of proposed project-related impacts.

Endangered and threatened species are protected by Federal law and must be considered prior to project development. If the action agency determines that listed species or critical habitat may be adversely affected by a federally funded, permitted, or authorized activity, the action agency will need to request formal consultation with us. If the action agency determines that the planned action may jeopardize a proposed species or destroy or adversely modify proposed critical habitat, the action agency will need to enter into a section 7 conference. The county list may also contain candidate species. Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event that they become listed or proposed for listing prior to project completion.

If any proposed action occurs in or near areas with trees and shrubs growing along watercourses, known as riparian habitat, we recommend the protection of these areas. Riparian areas are critical to biological community diversity and provide linear corridors important to migratory species. In addition, if the project will result in the deposition of dredged or fill materials into waterways, we recommend you contact the Army Corps of Engineers which regulates these activities under Section 404 of the Clean Water Act.

The State of Arizona and some of the Native American Tribes protect some plant and animal species not protected by Federal law. We recommend you contact the Arizona Game and Fish Department and the Arizona Department of Agriculture for State-listed or sensitive species, or contact the appropriate Native American Tribe to determine if sensitive species are protected by Tribal governments in your project area. We further recommend that you invite the Arizona Game and Fish Department and any Native American Tribes in or near your project area to participate in your informal or formal Section 7 Consultation process.

For future projects, you do not need to contact our office to obtain a species list for a new project. However, for additional communications regarding this project, please refer to consultation number 02-21-03-I-0092. We appreciate your efforts to identify and avoid impacts to listed and sensitive species in your project area. If we may be of further assistance, please feel free to contact Tom Gatz for projects in northern Arizona or along the Colorado River (x240) or Sherry Barrett for projects in southern Arizona.

Sincerely,

for Steven L. Spangle
Field Supervisor

cc: John Kennedy, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ

County Species Lists-Apache County

Common Name	Scientific Name	Status	Description	County	Elevation Range	Habitat	Comments
1) Listed							
Apache (Arizona) trout	*Oncorhynchus apache*	Threatened	This yellowish or yellow-olive cutthroat-like trout has large dark spots on body. Its dorsal, anal, and caudal fins are edged with white. It has no red lateral band.	Apache Coconino Gila Graham Greenlee Navajo	>5000 ft	Presently restricted to cold mountain streams with many low gradient meadow reaches.	Occupies stream habitats with substrates of boulders, rocks, and gravel with some sand or silt through mixed conifer and spruce-fir forests, and montane meadows and grasslands in the White Mountains. Also managed as a sport fish under special regulations. Found in North Canyon on East side of Kaibab Plateau.
Bald eagle	*Haliaeetus leucocephalus*	Threatened	Large, adults have white head and tail. Height 28-38"; wingspan 66-96". 1-4 yrs dark with varying degrees of mottled brown plumage. Feet bare of feathers.	Apache Cochise Coconino Gila Graham La Paz Maricopa Mohave Navajo Pima Pinal Santa Cruz Yavapai Yuma	Varies	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey.	Some birds are nesting residents while a larger number winters along rivers and reservoirs. An estimated 200 to 300 birds winter in Arizona. Once endangered (32 FR 4001, 03-11-1967; 43 FR 6233, 02-14-78) because of reproductive failures from pesticide poisoning and loss of habitat, this species was down listed to threatened on August 11, 1995. Illegal shooting, disturbance, and loss of habitat continues to be a problem. Species has been proposed for delisting (64 FR 36454) but still receives full protection under the ESA.
Black-footed ferret	*Mustela nigripes*	Endangered	Weasel-like, yellow buff coloration with black feet, tail tip, and eye	Apache Coconino Navajo	<10,500	Grassland plains generally found in association with prairie dogs.	Unsurveyed prarie dog towns may be occupied by ferrets or may be appropriate for future reintroduction efforts. The Service developed guidelines for surveying prairie dog

			mask. It has a blunt light colored nose and is 15-18 inches long and tail length is 5-6 inches.				towns which are available upon request. No wild populations of this species are currently known to exist in Arizona.
California Brown pelican	*Pelecanus occidentalis californicus*	Endangered	Large dark gray-brown water bird with a pouch underneath long bill and webbed feet. Adults have a white head and neck, brownish black breast, and silver gray upper parts.	Apache Cochise Coconino Gila Graham Greenlee La Paz Maricopa Mohave Navajo Pima Pinal Santa Cruz Yavapai Yuma	Varies	Coastal land and islands; species found around many Arizona lakes and rivers	Subspecies is found on Pacific Coast and is endangered due to pesticides. It is an uncommon transient in Arizona on many Arizona lakes and rivers. Individuals wander up from Mexico in summer and fall. No breeding records in Arizona.
California condor	*Gymnogyps californianus*	Endangered	Very large vulture (47 in., wingspan to 9 1/2 ft, weight to 22 lbs); adult plumage blackish, immature more brownish; adult wing linings white, immature mottled; head and upper parts of neck bare; yellow-orange in adults, grayish in mature.	Apache Coconino Mohave Navajo	Varies	High desert canyonlands and plateaus	Last wild condor reported in Arizona in 1924. Recovery program has reintroduced condors to Northern Arizona, with the first release (6 birds) in December 1996. Release site located at the Vermillion Cliffs (Coconino County), with an experimental/nonessential area designated for most of Northern Arizona and Southern Utah. Experimental/nonessential area in Arizona is within a polygon formed by Hwy 191, Interstate 40, and Hwy 93, and extends north of the Arizona-Utah and Nevada borders.
Chiricahua leopard frog	*Rana chiricahuensis*	Threatened	Cream colored tubercules (spots) on a dark	Apache Cochise Coconino Gila	3300-8900 ft	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from	Require permanent or nearly permanent water sources. Populations north of the Gila River may be closely-related, but distinct,

			background on the rear of the thigh, dorsolateral folds that are interrupted and deflected medially, and a call given out of water distinguish this spotted frog from other leopard frogs.	Graham Greenlee Navajo Pima Santa Cruz Yavapai		introduced fish, crayfish, and bullfrogs	undescribed species. A special rule allows take of frogs due to operation and maintenance of livestock tanks on State and private lands.
Little Colorado spinedace	*Lepidomeda vittata*	Threatened	Small (<4 inches long) silvery minnow which is darker on the back than the belly.	Apache Coconino Navajo	4000-8000 ft	Moderate to small streams in pools and riffles with water flowing over gravel and silt.	Critical habitat includes eighteen miles of East Clear Creek, eight miles of Chevelon Creek, and five miles of Nutrioso Creek.
Loach minnow	*Tiaroga cobitis*	Threatened	Small (<3 inches) slender, elongated fish, olive colored with dirty white spots at the base of the dorsal and caudal fins. Breeding males vivid red on mouth and base of fins.	Apache *Cochise Graham Greenlee Gila *Pima Pinal Navajo *Yavapai	<8000 ft	Benthic species of small to large perennial streams with swift shallow water over cobble and gravel. Recurrent flooding and natural hydrograph important.	Presently found in Aravaipa Creek, Blue River, Campbell Blue Creek, San Francisco River, Dry Blue River, and the mainstem upper Gila River. Critical habitat was removed March 1998; but re-proposed December 1999 and finalized April 2000. Species also found in Cattron, Grant, and Hidalgo counties in New Mexico. *Counties with critical habitat presently contain no known existing populations of loach minnow.
Mexican gray wolf	*Canis lupus baileyi*	Endangered	Large dog-like carnivore with varying color, but usually a shade of gray. Distinct white lip line around mouth. Weigh 60-90 pounds.	Apache Cochise Coconino Greenlee Pima Santa Cruz	4,000 - 12,000 ft	Chapparal, woodland, and forested areas. May cross desert areas.	Historic range is considered to be larger than the counties listed above. Unconfirmed reports of individuals in the southern part of the state (Cochise, Pima, Santa Cruz) continue to be received. Individuals may still persist in Mexico. Experimental nonessential population introduced in the Blue Primitive Area of Greenlee,

							Apache, and Coconino counties.
Mexican spotted owl	*Strix occidentalis lucida*	Threatened	Medium sized with dark eyes and no ear tufts. Brownish and heavily spotted with white or beige.	Apache Cochise Coconino Gila Graham Greenlee Maricopa Mohave Navajo Pima Pinal Santa Cruz Yavapai	4100-9000 ft	Nests in canyons and dense forests with multi-layered foliage structure.	Generally nests in older forests of mixed conifer or ponderosa pine/gambel oak type, in canyons, and use variety of habitats for foraging. Sites with cool microclimates appear to be of importance or are preferred. Critical habitat was removed in 1998 but re-proposed in July 2000 and finalized in February 2001 for Apache, Cochise, Coconino, Graham, Mohave, Pima counties; Also in New Mexico, Utah, and Colorado.
Navajo sedge	*Carex specuicola*	Threatened	Perennial forb with triangular stems, elongated rhizomes. Flower: white June and July.	Apache Coconino Navajo	5700-6000 ft	Silty soils at shady seeps and springs.	Designated critical habitat is on the Navajo Nation near Inscription House Ruins. Found at seep springs on vertical cliffs of pink-red Navajo sandstone.
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	Small passerine (about 6 inches) grayish-green back and wings, whitish throat, light olive-gray breast and pale yellowish belly. Two wingbars visible. Eye-ring faint or absent.	Apache Cochise Coconino Gila Graham Greenlee La Paz Maricopa Mohave Navajo Pima Pinal Santa Cruz Yavapai Yuma	<8500 ft	Cottonwood/willow and tamarisk vegetation communities along rivers and streams.	Migratory riparian obligate species that occupies breeding habitat from late April to September. Distribution within its range is restricted to riparian corridors. Difficult to distinguish from other members of the Empidonax complex by sight alone. Training seminar required for those conducting flycatcher surveys. Critical habitat was set aside by the 10th Circuit Court of Appeals (May 17, 2001).
Spikedace	*Meda fulgida*	Threatened	Small (<3 inches) slim with silvery sides and "spine" on dorsal fin. Breeding males	*Apache *Cochise Graham Greenlee *Gila Navajo *Pima	< 6000 ft	Moderate to large perennial streams with gravel cobble substrates and moderate to swift velocities over sand and gravel	Presently found in Aravaipa Creek, Eagle Creek, Verde River, East-West-Main and Middle Forks of the Gila River in New Mexico, and Gila River from San Pedro River to Ashurst Hayden Dam. Critical habitat was removed in March

			brassy golden color.	Pinal Yavapai		substrates. Recurrent flooding and natural hydrograph important.	1998, but re-proposed December 1999 and finalized in April 2000. Species also found in Catron, Grant, and Hidalgo counties in New Mexico. *Counties with critical habitat presently contain no known existing populations of spikedace.	
Zuni fleabane	*Erigeron rhizomatus*	Threatened	Herbaceous perennial that grows in clusters of numerous erect unbranced stems up to 2.0 feet (0.6 meters) tall. Flower heads solitary; pale blue ray flowers and yellow disk flowers.	Apache	7,300 - 8,000 ft	Selinium-rich red or gray detrital clay soils derived from the Chinle and Baca formations.	Only one Arizona location; other 28 sites in Sawtooth Mountains and northwestern part of the Datil Moutains in Catron County, New Mexico. Two sites also on the northwest side of the Zuni Mountains in McKinley County, New Mexico.	
2) Proposed								**1**
Mountain plover	*Charadrius montanus*	Proposed Threatened	In breeding season with white forehead and line over the eye; contrasting with dark crown; nondescript in winter. Voice is low, variable whistle.	Apache Cochise La Paz Pima Pinal Yuma	Variable	Open arid plains, short-grass prairies, and cultivated farms.	Species primarily found in Rocky Mountain states from Canada to Mexico. Arizona provides wintering habitat. Breeding has been documented, but is rare, and is likely restricted to tribal and state lands in Apache County.	
3) Candidate								**3**
Three Forks springsnail	*Pyrgulopsis trivialis*	Candidate	Minute hydrobiid snail; shell ovate to narrowly conic; height 1.5 -4.5 mm; whorls 2.5-5.0	Apache	8000-8500 ft	Rheocrene springs, seeps, marshes, spring pools, outflows and diverse lotic waters commonly referred to as cienegas.	Distribution limited to Three Forks and Boneyard Spring complexes in the North Fork East Fork Black River watershed of east-central Arizona.	

Yellow-billed cuckoo	*Coccyzus americanus*	Candidate	Medium sized bird with a slender, long-tailed profile, slightly down-curved bill, which is blue-black with yellow on the lower half of the bill. Plumage is grayish-brown above and white below, with rufous primary flight feathers.	Apache Cochise Coconino Gila Graham Greenlee La Paz Maricopa Mohave Navajo Pima Pinal Santa Cruz Yavapai Yuma	< 6,500 ft	Large blocks of riparain woodlands (Cottonwood, willow, or tamarisk galleries).	Species was found warranted, but precluded for listing as a distinct vertebrate population segment in the western U.S. on July 25, 2001. This finding indicates that the Service has sufficient information to list the bird, but other, higher priority listing actions prevent the Service from addressing the listing of the cuckoo at this time.
Zuni Bluehead Sucker	*Catostomus discorbolus yarrowi*	Candidate	Fusiform, slender, with a terminal mouth. Bluish head with a silvery tan to dark green back with sides and abdomen yellowish to silvery white. Most individuals do not exceed 20.3 cm (8inches), however some individuals exceed 25 cm (9 inches)	Apache	>6,000 ft	Stream reaches having shade and pool riffle habitats with coarse substrates. Young prefer quiet shallow areas	In Arizona, Smith (1966) reported the subspecies in four small streams. By the late 1970s-early 1980s, the range in Arizona was apparently reduced to Kin Li Chee Creek (Apache County) on the Navajo Nation. Surveys in April 2000, confirmed that bluehead suckers were still found there. Genetic analysis is ongoing to determine if this is the Zuni bluehead sub-species. Historically, it is believed to be the same species, but morphological and preliminary genetic analysis indicates that is not a member of the Zuni bluehead sucker sub-species Zuni. Also called Zuni Mountain Sucker.

▼4) Conservation Agreement

2

Arizona willow	*Salix arizonica*	Conservation Agreement	Scraggly or rounded shrub, prostrate mat or single stem, and large hedge or thicket	Apache	> 8,500 ft	Unshaded or partially shaded wet meadows, streamsides, cienegas; in or adjacent to water,	Conservation agreement between the Service, Forest Service, and National Park Service finalized in April 1995.

			plant; may be 10 feet high, usually 2-4 feet; branches yellow-green, red-brown, or brownish; previous years growth bright red.			some dry.	
Gooddings onion	*Allium goodingii*	Conservation Agreement	Herbaceous perenial plant; broad, flat, rather blunt leaves; flowering stalk 14-17 inches tall, flattened, and narrowly winged toward apex; fruit is broader than long; seeds are short and thick.	Apache Greenlee Pima	> 7,500 ft	Forested drainage bottoms and on moist north facing slopes of mixed conifer and spruce fir forests.	Conservation agreement between the Service and the Forest Service signed in February 1998. In New Mexico on the Lincoln and Gila National Forests.

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Previous Next Expand Collapse Search

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
2221 WEST GREENWAY ROAD, PHOENIX, AZ 85023-4399
(602) 942-3000 • WWW.AZGFD.COM

January 13, 2003

Ms. Jayne Aaron
E2M
1510 W. Canal Ct.
Suite 2000
Littleton, CO 80120

JAN 16 2003

Re: Special Status Species Information for **Township 19 North, Range 24 East, Sections 3 and 10; Rehabilitation of Painted Desert Inn and Associated Cabins at Petrified Forest National Park.**

Dear Ms. Aaron:

The Arizona Game and Fish Department (Department) has reviewed your request, dated December 23, 2002, regarding special status species information associated with the above-referenced project area. The Department's Heritage Data Management System (HDMS) has been accessed and current records show that the special status species listed on the attachment have been documented as occurring in the project area (3-mile buffer). In addition, this project does not occur in the vicinity of any proposed or designated Critical Habitats.

The Department's HDMS data are not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity.

Making available this information does not substitute for the Department's review of project proposals, and should not decrease our opportunities to review and evaluate new project proposals and sites. The Department is also concerned about other resource values, such as other wildlife, including game species, and wildlife-related recreation. The Department would appreciate the opportunity to provide an evaluation of impacts to wildlife or wildlife habitats associated with project activities occurring in the subject area, when specific details become available.

Ms. Jayne Aaron
January 13, 2003
2

If you have any questions regarding this letter, please contact me at (602) 789-3618. General status information, county and watershed distribution lists and abstracts for some special status species are also available on our web site at http://www.azgfd.com/frames/fishwild/hdms_site/Home.htm.

Sincerely,

Sabra S. Schwartz
Heritage Data Management System, Coordinator

SSS:ss

cc: Bob Broscheid, Project Evaluation Program Supervisor
Sharen Adams, Habitat Program Manager, Region I

AGFD# 01-07-03(06)

Special Status Species within 3 Miles of T19N,R24E Sec 3, 10

Arizona Game and Fish Department, Heritage Data Management System

January 13, 2003

Scientific Name	Common Name	ESA	USFS	BLM	WSCA	NPL
ASTRAGALUS XIPHOIDES	GLADIATOR MILK VETCH	SC				SR
DAIHINIBAENETES ARIZONENSIS	ARIZONA GIANT SAND TREADER CRICKET	SC	S	S		

No Critical Habitats in project area. AGFD #01-07-03(06), Petrified Forest National Park Rehabilitating three historic structures.

STATUS DEFINITIONS

ARIZONA GAME AND FISH DEPARTMENT (AGFD)
HERITAGE DATA MANAGEMENT SYSTEM (HDMS)

FEDERAL US STATUS

ESA **Endangered Species Act** (1973 as amended)
US Department of Interior, Fish and Wildlife Service (http://arizonaes.fws.gov)

Listed

- **LE** Listed Endangered: imminent jeopardy of extinction.
- **LT** Listed Threatened: imminent jeopardy of becoming Endangered.
- **XN** Experimental Nonessential population.

Proposed for Listing

- **PE** Proposed Endangered.
- **PT** Proposed Threatened.

Candidate (Notice of Review: 1999)

- **C** Candidate. Species for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened under ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.
- **SC** Species of Concern. The terms "Species of Concern" or "Species at Risk" should be considered as terms-of-art that describe the entire realm of taxa whose conservation status may be of concern to the US Fish and Wildlife Service, but neither term has official status (currently all former C2 species).

Critical Habitat (check with state or regional USFWS office for location details)

- **Y** Yes: Critical Habitat has been designated.
- **P** Proposed: Critical Habitat has been proposed.

[\N No Status: certain populations of this taxon do not have designated status (check with state or regional USFWS office for details about which populations have designated status)**]**.

USFS **US Forest Service** (1999 Animals, 1999 Plants: corrected 2000)
US Department of Agriculture, Forest Service, Region 3 (http://www.fs.fed.us/r3/)

- **S** Sensitive: those taxa occurring on National Forests in Arizona which are considered sensitive by the Regional Forester.

BLM **US Bureau of Land Management** (2000 Animals, 2000 Plants)
US Department of Interior, Bureau of Land Management, Arizona State Office (http://azwww.az.blm.gov)

- **S** Sensitive: those taxa occurring on BLM Field Office Lands in Arizona which are considered sensitive by the Arizona State Office.
- **P** Population: only those populations of Banded Gila monster (*Heloderma suspectum cinctum*) that occur north and west of the Colorado River, are considered sensitive by the Arizona State Office.

STATE STATUS

NPL **Arizona Native Plant Law** (1999)
Arizona Department of Agriculture (http://agriculture.state.az.us/PSD/nativeplants.htm)

- **HS** Highly Safeguarded: no collection allowed.
- **SR** Salvage Restricted: collection only with permit.
- **ER** Export Restricted: transport out of State prohibited.
- **SA** Salvage Assessed: permits required to remove live trees.
- **HR** Harvest Restricted: permits required to remove plant by-products.

WSCA **Wildlife of Special Concern in Arizona** (1996 in prep)
Arizona Game and Fish Department (http://www.azgfd.com)

- **WC** Wildlife of Special Concern in Arizona. Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Arizona Game and Fish Department's listing of Wildlife of Special Concern in Arizona (WSCA, in prep). Species indicated on printouts as WC are currently the same as those in **Threatened Native Wildlife in Arizona** (1988).

Revised 10/3/01, AGFD HDMS
J:\HDMS\DOCUMENT\NBOOKS\TEMPLATE\EORDEFS\STATDEF